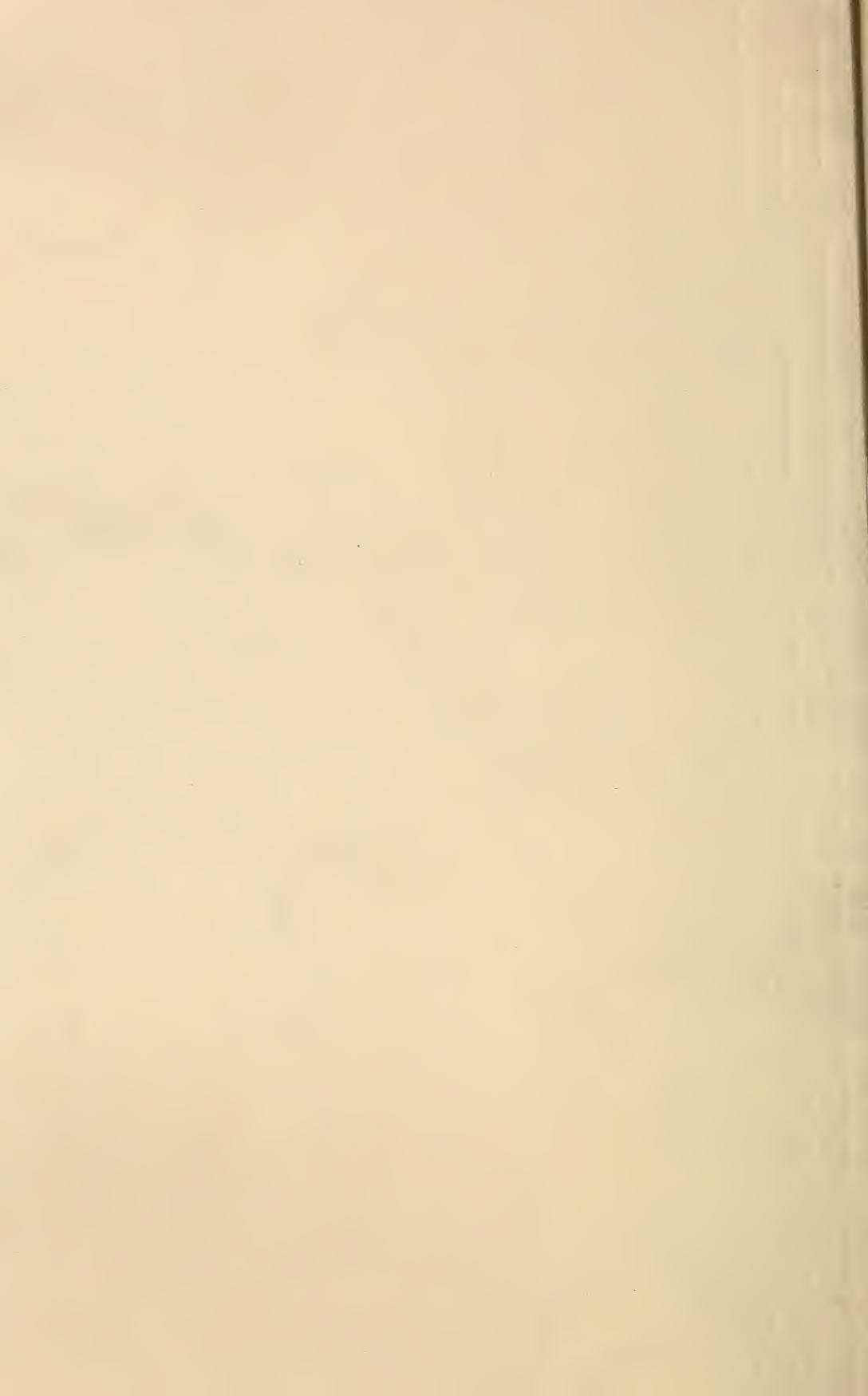
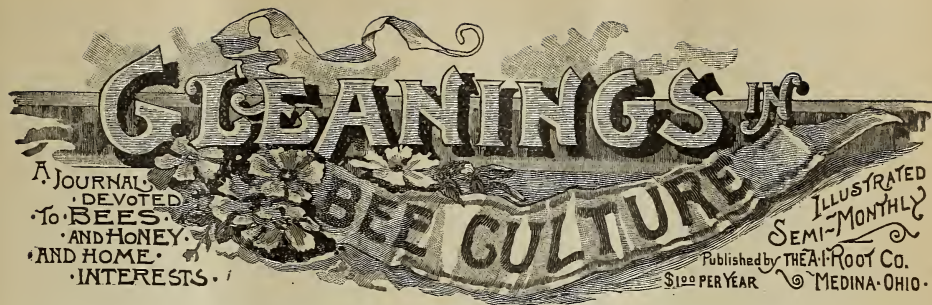


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# GLEANINGS IN

## BEE CULTURE

A JOURNAL DEVOTED TO BEES AND HONEY AND HOME INTERESTS.

ILLUSTRATED SEMI-MONTHLY

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### STRAY STRAWS

FROM DR. C. C. MILLER.

A BY-LAW of the Central Texas Association reads, "All white persons interested in apiculture are eligible to membership in this Association."

FOUR APIARIES are reported in *American Bee Journal* by Prof. Cook, aggregating 1535 colonies, and yielding 90 tons—an average of 117 lbs. a colony.

SWEET-CLOVER ointment. "A handful of sweet-clover leaves fried in about half a tea-cupful of fresh lard or hen's oil."—*Mrs. Lambrigger*, in *American Bee Journal*.

APIS DORSATA was discussed at Buffalo, and I didn't have a chance to say a word against it—was temporarily in the chair. Wonder if that was a put-up job between Pres. York and the dorsata men. [See editorials.—ED.]

THE SOCIAL PART of the Buffalo convention was probably better than any of its predecessors. It was worth going a long way to meet some of the men that were there. Some grand good men are in the ranks of bee-keepers. [Just so.—ED.]

AN UNPRECEDENTEDLY heavy honey-flow is given, p. 636, as a possible reason for excessive swarming. Wouldn't it be better to substitute "long" for "heavy"? We are generally told that bees swarm more in a moderate than in a heavy flow. [In answer to your question I would say "I don't know."—ED.]

F. L. THOMPSON, p. 629, wants me put out because I don't want the bother and worry of making my own foundation. Now see here, F. L., just you have that little scheme carried out, and the first thing you know some other fellow will want you put out because you don't want the bother of making your own sections.

RETURNED SWARMS, we are told on p. 636, "will swarm as often as you hive them, and as long as the honey season continues." That may do for a rough statement, and even for an exact statement, providing the season closes about two weeks after the first swarm, for in two or three weeks the last young queen

will have emerged and the swarming will be over. [I meant the statement in question to apply in a general way. I accept your emendation.—ED.]

EARL C. WALKER, p. 625, says that, in transferring, there should not be a tight fit between hive and driving-box. That agrees with views held across the water, and foreign journals have had pictures of transferring in which the driving-box rested on the hive at an angle of nearly 45°, so the queen could be seen when she went up.

PROF. COOK, p. 622, says he voted against amalgamation, not because he was opposed to it, but because he thought the change should not be forced upon those opposed to it. If others did the same way, it can easily be understood that amalgamation would fail with a large majority in its favor. But, say, professor, how about forcing upon us who *did* want the change, something we didn't want?

PREVENTION of after-swarms, H. W. Savage says he accomplishes (*American Bee Journal*) by hiving swarm on old stand, putting supers over excluder, then setting old hive on top. "The afternoon of the second day, the old colony will become so depleted of bees (if the weather has been favorable) that they will give up swarming any more, and will begin to carry out drone brood. Then carry them to a new stand."

FRENCH BEE-KEEPERS are in the throes of a discussion as to uniformity in size of frames. A frame 30 by 40 centimeters ( $11\frac{1}{8}$  by  $15\frac{3}{4}$  inches is likely to win; but that's inside measure, and it is wisely argued that there can be no exact uniformity without a settled outside measure. That would be something like 16.3 by 12.3 in., making a capacity about 28 per cent larger than the Langstroth-Simplicity. The British standard, 14 by  $8\frac{1}{2}$ , is about  $\frac{3}{4}$  as large as the Simplicity. [The French are believers in large frames. They follow Dadant, you know.—ED.]

PROF. COOK has been sampling with others some sage honey, "and all with one accord have pronounced it the best honey they have ever eaten."—*American Bee Journal*. Additional proof that locality rules taste. Sage is best to the Californian, clover to the Northerner, eucalyptus to the Australian. And it

seems further, that, when a man changes his locality, he changes his taste. [In York State very many greatly prefer buckwheat to any white honey produced. Nine-tenths of all buckwheat is produced in York State. As you say, locality rules taste.—ED.]

DOOLITTLE says, p. 635, that nearly all of our best bee-keepers agree that Italians are not inferior to blacks for comb honey. I think that's correct, and I wonder whether those who insist that Italians seal comb with a watery look have a special strain. I've had several strains of Italians, but they all make nice white combs. [I have seen lately a good deal of comb honey made by black bees. To my notion it is just a *little* whiter than that made by the average Italians. In *quality* produced they (the Italians) are certainly not inferior. Doolittle told me he had a strain of *yellow* Italians that cap just as white as black bees.—ED.]

TRAVEL-STAINED SECTIONS are not good to sell—only to eat. The editor prefers them for his eating, and perhaps all do who know enough. Would it not be worth while to take some pains to educate the public in this regard? Even where looks count for every thing, it's just as well to have only one side white, for the other side is not seen after the honey is placed on the table. [If the consumer could sample comb honey by *taste* rather than by the *eye* before buying, the travel-stained honey would soon work its way to the front. I bought some large California pears that looked, oh! so nice! but when I came to eat them they tasted like insipid pumpkins. I then wished I had bought home-grown Bartlett's that looked inferior. I am educated on the pear question.—ED.]

QUITE A PRETTY FIGHT that has been between F. L. Thompson and the editor about the Rietsche press. Although it may never be settled without arbitration, the discussion has brought out some important points interesting to all. In spite of the evident desire for fairness, there crops out occasional prejudice on both sides. Thompson hardly wants to see that bee-keepers have largely given up making *brood* foundation, and ye editor insists that a Rietsche press must be saddled with express charges from Germany. If he believed with Thompson, the presses would be made in this country, and at any rate they could come from Germany by freight. [This one item of express charges was only a small part of the whole matter. The principal item was the great difference in *quality* of the two foundations.—ED.]

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#### BREEDING FOR LONGER TONGUES.

BY PROF. A. J. COOK.

The following inquiry appeared on p. 462, current volume of the *American Bee Journal*: "Do you suppose it possible to increase the size—and especially the length of tongue—of the races of bees we now have? If possible, do you think it desirable?" I was very much

surprised to find that seven answers implied doubt or impossibility regarding the first part of the questions. The majority, however, and they the leaders in our ranks, like Elwood, R. L. Taylor, Dr. Mason, and the Dadants, give an emphatic "Yes." My own answer was this: "Yes, I have no doubt of it, and I believe it is desirable." I believe that scientific research abundantly warrants us in giving a positive categorical answer to this question, in accord with the majority. I wish briefly to give my reasons not only to inform those who may not have had time or opportunity to study in such lines, but also in the hope of influencing some one to undertake a line of work full of promise to apiculture.

When Schwann discovered that the cell was the basis of all tissue, whether animal or vegetable, and that the animal and vegetable cells are essentially alike, he made a discovery of great practical importance. Of hardly less value was the discovery of the law of the "conservation of energy." Darwin's researches proved that the laws of breeding of animals and plants are essentially the same. Every breeder of plants and animals to-day recognizes and acts upon this truth. We know now of a truth that all organisms, plant and animal alike, tend to vary. We also know that close breeding in the line of any special variation tends to make that variation more prominent, and at the same time to fix it. Thus, such men as Bates, Boothe, the Collens brothers, and Bakewell, gave us our short-horns and improved sheep. In like manner our wondrous Hamiltonians and marvelously modified breeds of swine have been developed in a single generation. What is true of our higher vertebrates is certainly true of insects. True, some animals tend to vary more than others, and probably the characteristics of some would be more quickly set by careful selection than others. But that all are subject to these laws, and would respond to their action, there can be no shade of doubt. That our bees, and especially the highly wrought and sensitive Italians, whose tongues have been already pushed out two one-hundredths of an inch longer than those of the black races, and that by the slow process of "natural selection," would be quick to vary and as quick to respond to the more severe artificial selection, seems to me more than probable. Two or three of the answers referred to, express belief that, "while it is possible to breed longer tongues, it is not practicable;" but I see no reason to hold such a view.

What is needed to succeed in this work is a man of great patience, quick observation, determined will, and absolute accuracy and honesty. It will take long years, hence the necessity of great patience. Slight variations must be detected, and used in the selection of breeding-stock; therefore close powers of observation are called for. Often the hardest effort will seem to advance the undertaking but little, and possibly none at all; yet this must not breed discouragement, and thus the necessity for a determined will. The best men are likely to be biased in judgment when they are seeking some valuable end, and

therefore the vision of the breeder must be clear and true.

#### THE METHOD.

A good tongue-gauge, accurate knowledge of the habits of bees, and good judgment to use this knowledge, and unflagging persistence—even in the face of seeming failure—are the implements that shall win in this struggle. The inclined-plane tongue-gauge used by me some years ago, and which won a medal at the Paris exhibition, is cheap and effective. Simply placed in the hives it will tell what colonies have longer tongues than others, and so what colonies should be used in breeding. Mr. J. H. Martin and others have also invented efficient and practical gauges by which the length of the tongues could be accurately measured. When colonies are found that show that the workers have tongues longer, even though but slightly so, than the average, the queens of such colonies should be used exclusively in breeding. If by use of any of the methods recommended for controlling mating as to male or drone bees, as by pruning drone comb, using drone-traps, securing early drones from desired colonies, or by working in isolated districts, both drone and queen can be selected; then the end sought would be brought nearer. In case the apiary were large, so that a large number of queens would be needed, then more speedy results might be expected. The tongue-gauge would surely tell which of the new colonies had retained or increased the desirable feature, and so which to use in subsequent mating or breeding.

Such an effort, intelligently and faithfully persisted in and carried out, would surely result in a greatly improved race of bees, and in as great advantage to our craft. The only question is, Have we the man with the required patience and persistence? This would be, in some ways, much easier than improving cattle, horses, and hogs, as the numbers produced per season would be immensely greater, though the greater difficulty in controlling mating would stand in the way of quick results. Who has the patience to do this valuable work?

#### NOTES.

One bee-keeper in San Diego Co., near Escondido, is reported to have shipped six car-loads of honey this season. B. S. Taylor, of Perris, started with 154 colonies of bees, and has increased to nearly 200. He has taken ten tons of first-class extracted honey, and 6000 sections of fine comb. I have tested the latter, and never tasted finer. This has been a fine season in Southern California.

I was glad to read the Michigan foul-brood law in last GLEANINGS, and to note your and Mr. Hilton's kind words; for it was I who wrote the bill and secured its passage. Mr. Root, who had charge of the bill, was at one time a successful bee-keeper of Mason, Mich., and I think he was mayor of his city.

You seem to express doubt of the position that poisonous plants would not, as a consequence, secrete poisonous nectar. The plant is poisonous because the sap or tissue contains

some toxic element. The nectar is secreted by glands which take elements from the sap, and form from these the sweet of the flower. The nectar is not the sap. The nectar is to attract insects to pollinate the flowers. Were it poisonous it would defeat its very purpose. Therefore reason, and, so far as I have been able to discover, observations as well, argue that nectar, even of poisonous plants, is non-poisonous. Honey, when eaten immoderately, or at all in rare cases, makes some people very ill. In the region of known poisonous plants, how easy to start a story of poisonous honey from such plants, and yet such story be utterly without truth! If the story dated back to Xenophon's time, how much more unworthy of credence! for scientific accuracy is much more common to-day.

It grieves me to the heart that our grand old friend Dr. Mason disagrees with me. It is pleasant to be in accord with such men, and sad that they should be in the wrong (?). I have only to say that I do not believe both Unions will survive. I do not think that there is room for both. I did not say we should resist the expressed wish of the members. I was in doubt. To save its life might warrant such a course. That is what advisory boards are for—to act in an emergency. I am firmly of the opinion that the two Unions should be merged into one; and it begins to be very clear to me which one will survive. In this opinion I wish to blame or impugn the motives of no one. I see no reason to accuse any one of acting in any way other than what he believes wise and right.

Claremont, Cal., Aug. 16.

#### STRONG COLONIES.

Bees Hanging Out; Wide Entrances; Colorado vs. Wisconsin; the Glorious Climate of the Former; a Valuable Article.

BY M. A. GILL.

*Mr. Editor:*—I was highly interested in your editorial remarks in the Aug. 1st issue on the advantages of big colonies; also in regard to "getting bees started in sections," and to "bees hanging out;" and with your consent I will give to your readers some of my ideas along these same lines.

"Strong colonies" has always been one of my hobbies; and while producing extracted honey in Wisconsin I secured them by using a two-story 8-frame hive for a brood-nest, and was troubled very little with swarming; but since coming to Colorado, and producing comb honey exclusively, I find that, while colonies in 8-frame hives may be a little more prone to swarming, as good results may be obtained with this hive as with any other if the colony is so managed that the 8-frame hives are used for breeding, instead of for storing surplus.

I find that, early in the spring, the queens (none but prolific ones are allowed to live) will stake off and occupy the room they need, and increase the area of brood as the strength

and warmth of the colony require. Then while every condition is on the ascending scale, when the brood is clear up to the top-bars, is just the time to put on the first super, the next super being put on when the same condition is reached again, never allowing the bees to quite reach the zenith of their ambition.

As a proof that there is scarcely any limit to strong colonies so managed I will say that I have five colonies (four of which did not swarm, and one that was made by uniting two first swarms) among my bees, and they are now working in their eighth super, or 40 supers for the five colonies.

In this apiary are 117 colonies, about 40 of which have a 10-frame capacity. Now, isn't it provoking that only one of the five is a 10-framer, and four of them just the common 8-frame Dovetailed hives? But, you know,

comb-builders who will teach them by example that there is something in this world to do.

While traveling among the bee-keepers in the capacity of foul-brood inspector, I am often asked this question: "Gill, why do my bees hang out so?" and upon examination I find the bottoms nailed on tight, and the entrance-blocks turned the long way, and nailed to the entrance, and the hive standing out in the hot sun, with no shade whatever. Why should any sane man ask such a question, under those conditions? Why, I had rather set a hive up on stilts, and take the bottom clear off; and I sometimes do, for I go after my bees with mighty heroic treatment sometimes in order to break up these habits, for bees are not unlike us men who know it is very hard to leave off ruinous and bad habits when once they are well formed.



M. A. GILL, IN HIS APIARY IN COLORADO.

Josh Billings said, "Never argy agin success," so I won't; but you may if you want to.

But if a colony gets a lot of sealed honey between the brood and top-bars, and gets the corners and sides of the hive well stored with sealed honey, and has been given so small an entrance that it has *compelled* them to learn to hang out, you may put on supers, give bait sections, uncap honey, etc., but they won't prosper. You know Billings said, "If a man gits a start down hill, it seems as if the whole world is greased for the occasion;" and the colony mentioned above seems to be in the same condition, although Nature's storehouse is running over with sweetness. The only way I can successfully break the habit is to exchange this colony's super for one from a colony that has a super well occupied with

Other people say to me, "I wish you would tell me why my bees *won't* go into the supers;" and on inquiry I find that a colony in an 8-frame hive has been allowed to swarm perhaps three times; the first swarm has been allowed to get into that clogged condition above mentioned, the parent colony has not yet rallied from the drain upon it, and the other two swarms are not yet strong enough to go above. As Edwin Bevens says in the last issue of the *American Bee Journal*, "Another fool question. Why do people expect bees to occupy supers until the conditions in the brood-nest and the strength of the colony warrant it?" All such men should follow the advice of Moses Quinby, when he says, "Confine your experience to pecks of bees instead of pints." Years ago I did a great deal of dividing, but

must say that doubling up gives me more satisfaction.

I will give you a glimpse of one end of my Crescent Apiary, situated away over on this side of the Rockies, on the border of the desert. You will notice at my back, out through the timber, a growth about as high as a man's shoulders, and in full bloom. It is cleome, or the so-called Rocky Mountain bee-plant, of which there are acres and acres made to grow by the sub-irrigation from Grand River, that flows only about 20 rods to the right of the picture.

On the left, out through the opening in the timber, commencing within a quarter of a mile, are the farming and fruit lands, under a fine system of irrigation, among which are hundreds—yes, thousands—of acres of alfalfa!

The bees shown in the picture are doing finely. Another apiary, in the direction of the opening in the timber, and only four miles away, is doing and has done poorly during the entire season, while my other apiary, 117 colonies, out in the foot-hills, 15 miles from here, have increased from 58 to 117, and will give 200 24-lb. cases of comb honey this season. I bought them just at the close of the swarming season, or perhaps there would not have been so many.

To give you an idea of the resources of this valley that has been redeemed from the desert in the last 14 years, I will say that the railroads estimate that there will be shipped from this county 1000 carloads of fruit this season.

While I shall always have a kindly remembrance for old Wisconsin, I have no desire to exchange this glorious climate and my wife's health for the rigors of a Wisconsin winter.

Grand Junction, Colo., Aug. 12.

[I indorse so thoroughly every thing that is said by friend Gill that there is really nothing that I can say by way of comment except to add that the time is coming when honey-producers will soon cry for larger entrances to their hives. We expect to make our hives next year so that the entrances will be an inch deep, and the full width of the hive. A small entrance can't be enlarged; but a large one can be contracted if necessary. Large hives and large entrances capable of contraction will do much to solve the problem of swarming for the future, I believe.—ED.]

#### AMONG THE MICHIGAN BEE-KEEPERS.

Square Bottom-bars; Producers Selling Their Own Honey; Large Hives.

BY A. L. BOYDEN.

While looking over Mr. Morrison's yard I noticed that he used bottom-bars  $\frac{3}{8}$  inch square; but instead of nailing them in the usual way with a flat side down he places them in with the angle or corner down, giving as his reasons that the bees attach the combs better, and it leaves no space underneath, in case a bar should sag, for moths to hide. It seems to me the  $\frac{3}{8}$ -inch bottom-bars should have a more extended trial, and I am inclined

to think the manner of nailing them in, as used by Mr. Morrison, may be an advantage.

#### BACK TO MR. WING'S APIARY.

Early next morning Mr. H. S. Wheeler drove down to Mr. Morrison's yard, having learned that I was down there. I had planned to go back by Mr. Wing's apiary, and so, bidding adieu to friend Morrison, I loaded my wheel into Mr. W.'s buggy, and started back with him. Not being able then to go to his yard our visit was made mostly as we drove back to Mr. Wing's. Mr. Wheeler uses the Gallup frame, I believe, working entirely for comb honey. Knowing of a sale he made of part of his crop in August, 1896, at 12½ cents per lb., I mentioned that it was a fortunate deal, for many sold at much less only a few weeks later. He surprised me by saying he received more for the rest of his crop than he did for the lot I spoke of. Instead of selling his honey outright to some large concern, or sending to a commission house, Mr. Wheeler has sold largely to grocers and large consumers direct, or through some one employed by him, mainly in cities outside of the great honey-producing district. It certainly would pay the average bee-keeper to spend more of his own time in selling direct to grocers and consumers.

Before reaching Mr. Wing's yard we met Mr. Wing himself. Turning about he drove back with us to his yard. Mr. Wheeler soon left us, and then we went out to examine some of the supers. No doubt, to the bee-keepers of that section the season has seemed a failure when compared with previous years; but by the appearance of the supers in Mr. Wing's yard I should say he has taken a better crop this year than the average bee-keeper of Southern Michigan has for a number of years. To one who has ever had the "bee fever" the incidents related by these men regarding the wonderful flow from willow-herb in former years are very interesting indeed. While they were somewhat discouraged, I felt much of my former enthusiasm coming back.

Near by is the yard of E. S. Frost, where I also stopped; but I failed to see him there or at his home, some six miles south.

I next wheeled over to Breckenridge, where a number of bee-keepers are located, and was soon at the home of N. E. Doane. Not many years ago Mr. Doane located here with a small apiary. His remarkable success led a good many to enter the field, so large numbers of bees are kept in that section. Very naturally, his neighbors have come to him for hives, and this year he has handled nearly a carload of supplies.

Readers of GLEANINGS will remember that The A. I. Root Co. has been, the past year, supplying foundation without paper, when desired. Mr. Doane, as well as his wife, who assists him a great deal in his work, very much prefers foundation without paper, as it saves so much time, and the foundation has invariably reached them in good order without paper.

#### LARGE HIVES.

Mr. Doane is amused by any discussion as to the merits of eight-frame versus ten-frame

hives. He calls them both *small*, and a visit to his yard shows a large number of *twelve* and *sixteen* frame bodies. I can not explain his system here, but it seems to have some decided advantages. He says: "It's the honey I am working for," and I should think he gets it too.

From his place I went to Saginaw, expecting to visit one or two bee-keepers there, but failed to see them. I therefore started homeward, feeling well repaid for my visit to the willow-herbers.

### AUSTRALIAN LUCERNE HONEY, AGAIN.

BY E. TIPPER.

*Mr. Editor:*—When, on May 15, 1896, I innocently penned those few fraternal lines to you containing a few items of local bee-news, I little thought I was laying myself open to such monstrous charges as appeared in your issue of May 1st of this year, from Michael Scobie. Notwithstanding your quite sufficient reply, I, being accused of "abuse" and "slander," feel I must reply.

I spoke of the lucerne, or alfalfa, because there had been some discussion in your journal then about alfalfa honey. In the month of March, 1893 (our autumn), a flood of a magnitude not known for at least some seventy years, swept the valley of the Hunter clean. It was not till the following August (our spring) lucerne could be planted; so in the summer following (1894-'95), the lucerne being young, there was very little honey from that source. The following season (1895-'96), and of which I wrote to you (my letter being dated May 15th of that year), the lucerne gave a good flow of honey, but, as I have stated, it was thin. We will now go back.

My place of business is in the most central part of West Maitland — right in the heart of this lucerne-growing district. In 1893 I added to it a honey-depot. Through the flood alluded to, no honey came for my bees. I purchased honey from the interior, and worked up a good trade. In 1895-'96 I gathered a few hundred pounds from my own bees (lucerne honey); also bought locally from several of the best-known local apiarists, including sections from Mr. Munday. But it was, as I have stated, all *thin*. My customers complained, and the trade was falling off. I tried to thicken it by leaving it in an upper room under an iron roof, but without avail. While in Sydney I mentioned the matter to a bee-scientist, who replied that lucerne is a clover, and all clovers yield thin honey. Strange at our local show that year, honey (said to be lucerne) of a density much greater than my experience had found it, gained prizes. The members of my family and I examined it. We said and say nothing. As I am in no way connected with any supply or queen-rearing business, but must keep bees or cease to be editor of the *Australian Bee Bulletin*, I removed my apiary some 125 miles away from Maitland, to be among the flowers whose hon-

ey I found to be in most demand among my customers, leaving my sons to manage my business.

This year there has been a great lucerne flow on the Hunter. Up to the present I have not tasted the honey; but at the Musselbrook show, some six weeks ago, I was shown some nice-flavored dense honey which I was told was lucerne honey from Maitland. The conclusion I had to arrive at was that the lucerne yields thin honey the two first years after it is planted. Then, as Mr. Scobie says, as the plants become strong and deep-rooted, the honey becomes more dense. This may be a very important bit of knowledge gained, that may come in very useful to many an apiarist, and who may thus become indebted to Mr. Scobie for attacking me and thus bringing it out. I have no wish, no interest, no desire, to disparage lucerne honey. My home, my children, and what I have worked for for years, are at West Maitland, the center of the Hunter Valley, and I intend starting another apiary there in the spring. I feel sure that all who read the short remarks I made will say it was done in the spirit of truth.

Maitland, N. S. W., June 26.

### POISONOUS HONEY.

BY T. C. POTTER.

*Mr. Root:*—I inclose you quite a formal and exhaustive treatment of the question of poisonous honey, which I cut from the August, 1896, number of the *American Druggist and Pharmaceutical Record*. You may have seen it; but as it goes into the subject so far, referring even to ancient classical authorities, I thought you might prize it and be glad to copy it in GLEANINGS, or at least file it away among your references for discussions upon this subject, which, like the ghost, never downs.

Indianapolis, Ind., July 3.

[Just as I was getting ready to start for the Buffalo convention the above came to hand. As I have not space to print all of the article in question, nor time to condense it, I have asked our stenographer, "W. P. R.," to do the latter. It is an important matter, and is worthy of all the space it takes.—ED.]

The article in question is by Mr. Lyman F. Kebler, Ph. C., B. S., Philadelphia. It is, I believe, one of the fullest and most comprehensive reviews of the subject we have. While space forbids a reprint of the whole article, I will mention some of its points.

Mr. Kebler tells the familiar story of the trouble Xenophon's soldiers had with unwholesome honey; also similar quotations from Strabo, Pliny, and others, to the same effect. Nearly all the references to poisonous honey point to Asia Minor as being the home of the plants producing it. He says that at Abaza, near the Black Sea, 25 tons of "mad honey" is gathered annually for shipment, to be added to intoxicating liquors in order to increase their effect. Perhaps this suggests

"Jersey lightning" to the writer, for he immediately says that not less than eight cases were reported in New Jersey last year (1895). In one case the poisoning was on a wholesale scale, fourteen being affected, six of them severely. None died. At Branchville, S. C., twenty persons were affected, three fatally.

In speaking of the Princeton poisoning, the writer says:

The sections of comb honey in the writer's hands were carefully examined externally, and found to possess a normal physical appearance. One section would not have aroused the least suspicion in odor, color, or taste; but another section was quite dark, reddish brown, possessed a nauseating odor and a pungent, burning taste in the back of the mouth and throat, in a measure resembling the first sensations of aconite. A number of persons were invited to take a little of the honey, its character being unknown to them; all immediately began to cough, and question the quality of the product. A third section was entirely eaten by the writer and another person in a day and a half with no ill effects. A small portion of one side of the comb possessed a most pleasant flavor, while the remainder faintly resembled section two above. The producer was not certain that all of the sections delivered to the writer were poisonous.

Mr. Kebler then describes the effect of this honey on a cat. He says:

The animal could scarcely be induced to move; and when motion was attempted, first the fore limbs would fail, and then the back limbs would give way. First one portion of the body would sway in one direction, then the other portion in another, reminding one of a highly intoxicated person. Had the entire dose been retained, death undoubtedly would have followed. As it was, the cat had regained her normal condition only at the end of 24 hours.

The physician who attended the persons afflicted with similar honey, writes:

Only two persons partook of the honey: all the rest of the family and the servants ate of each of the other articles served for breakfast, and were not in the least affected. Mr. and Mrs. Chambers took but a small quantity, yet each noticed a peculiar, pungent, burning taste in the comb as soon as it had passed their lips. In 15 or 20 minutes afterward Mrs. Chambers was taken with nausea, abdominal pain, and vomiting, soon followed by loss of consciousness, coldness of extremities, feebly acting heart, and complete collapse. While ministering to her, Mr. Chambers, who had also experienced the initiatory symptoms of pain and nausea, suddenly exclaimed, "I can not see," and soon sank in a state of syncope on the floor. In each case the symptoms were similar—retching, vomiting, purging, acute gastric and abdominal pain, and continued cramps for some hours, with surface coldness, deadly pallor, and the general symptoms of collapse.

No deaths resulted. Many plants are mentioned as being noxious, but they seem to be very rare, and far apart. *Kalmia latifolia* is mentioned as being bad. While this writer says no case of poisoning from heather has been reported from Scotland, where this plant (*Ericaceæ*) is perhaps the chief source of honey, he still advises bee-keepers in New Jersey, where this plant abounds, not to put hives where bees can have access to it.

The reading of Prof. Cook's article, just preceding, makes the following quotation necessary, as it seems to refute, in one particular, what he says:

When the poison is an alkaloid, as gelsemine, the problem is easily solved. The bees simply collected nectar from certain narcotic plants. But some one argues that it is impossible for these little creatures to collect and store a poison and not be killed themselves. There is scarcely a narcotic herb that does not give support to some form of animal life. What is nourishment and life to one is frequently poison and death to another. Many of General Braddock's horses perished from eating leaves of the laurel during the month of June, 1755, a few days before his defeat,

yet pheasants will eat and thrive on the buds and leaves of the *kalmia latifolia* in times of scarcity; but their flesh becomes so permeated with the poisonous principle that persons have frequently been poisoned by eating it. Such a large number of cases of poisoning from this source at one time occurred in Philadelphia that the mayor was compelled to act by prohibiting the use of pheasants for food. Again, who can positively state that the mortality of bees is not increased in poisonous pasturage?

All who desire to read the article in full can doubtless get it by addressing the journal referred to. It is printed in New York.

#### NOTES BY THE WAY.

With the Bee-keepers at Rocky Ford and Denver, Colorado.

BY J. T. CALVERT.

On my way back from California I stopped four or five days in Colorado. I spent a very pleasant day at Rocky Ford with Henry F. Hagen, quite an extensive bee-keeper who has for several years been supplying the bee-keepers of that vicinity with their hives and supplies. Mr. Hagen produces comb honey exclusively, and uses a section  $4\frac{1}{2}$  inches square, 7 to foot wide, on T tins, in the regular Dove-tailed super, made  $\frac{1}{8}$  inch deeper to provide for shrinkage in their very dry climate. He prefers this section for much the same reasons that have been urged in favor of the 4x5x7-to-foot Danz. section—it makes a pound to the box, with a thinner comb and larger comb surface. He has had no trouble in selling all the honey he could produce, and much more that he has bought in that vicinity at good prices. In fact, he was behind on orders when I was there, to the extent of nearly a ton.

Honey in this region is gathered almost exclusively from alfalfa. There was a great deal of cleome, or Rocky Mountain bee-plant, in bloom, and bees were gathering some honey from it. This honey is darker in color, and stronger in flavor. The bees seem to prefer the alfalfa; and the great areas of this clover, with the beautiful blue flower, generally furnish abundant pasturage. We visited a number of bee-keepers in and around Rocky Ford, most of whom follow Mr. Hagen's methods. A few bees might be seen at nearly every farmhouse. I was assured that, within a radius of five miles, there were at least 2000 colonies of bees. In many parts of the country we should consider this overcrowding; but most of these bees seemed to be getting plenty of honey. Those surrounded by alfalfa-fields were doing much better than were others in town with less of this source of their best honey near at hand. This strip of land, several miles wide, and lying to the east and west of Rocky Ford, and furnishing pasturage for thousands (and I might almost say ten thousand) colonies of bees, depends upon irrigation almost entirely for vegetation. As the river leaves the higher ground to the west it becomes the feeder of several large irrigating-ditches which follow the high ground, giving just enough fall to carry the water. Side ditches and runs distribute the water all over the ground, converting the almost barren desert into a rich garden.

Rocky Ford is becoming famous for its melons, both cantaloups and watermelons. This year's crop was estimated at about 250 carloads of each. It requires about twelve carloads of crates, besides many thousands of baskets, to put up the crop for shipment.

Quite a start has been made in fruit-growing, and this pursuit gives promise of developing to large proportions, and will become a source of large revenue to the district. I tasted some plums and peaches which were as fine as any I have ever seen. The climate of this section of Colorado is delightful, and much more beneficial to people with pulmonary ailments than the higher altitude further west. On the western horizon, a little to the north, Pike's Peak may be clearly seen, eighty-five miles distant, with its snow-clad summit 14,017 feet above sea-level. Thither I made my way after stopping a few hours in Pueblo, and making a call on A. R. Pierce, who furnishes a good many bee-keepers tributary to Pueblo with their supplies.

I stopped 24 hours in Manitou, and enjoyed to the full this brief stay amid its natural wonders. One who has never seen the mountains can form no idea, from description, of their sublime and stately grandeur. After partaking freely of the water from the soda springs for which Manitou is famous, I proceeded at once to visit the many "points of interest." Beautiful streams of clear water from the mountains, tossing down the canyons over the rocks, make music delightful to the ear, and add to the charm of the wonderful works of God seen on every hand. One is well repaid for a visit to the Cave of the Winds, or the grand caverns. Temple Drive and the Ute Pass are full of interest. The Garden of the Gods, with its cathedral spires of red rock, balanced rock, and other rocky formations, is worthy of a visit.

The most thrilling experience is a trip to the summit of Pike's Peak. This we made on what is called the cog railroad. This road is about 9 miles in length, and in that distance rises to an altitude of over  $1\frac{1}{2}$  miles as it winds up the rocky mountain-side. There are various ways of making the ascent. Some walk up, while others ride the little mountain burros. There is also a carriage-drive of over thirty miles, reaching to the summit. All of these take more time; and as my time was limited I chose the quickest route. Unfortunately it was a cloudy day, and the view from the summit was thereby much obscured. It was a magnificent view, nevertheless. To get a bird's-eye view of the country for hundreds of miles in every direction is an experience rarely enjoyed. The Cripple Creek gold-mines could be distinctly seen to the southwest, only about thirty miles away on an air-line. There is a U. S. observatory on the summit, and the thermometer stood at 38 degrees when we were up there about noon. The train on the cog road makes two regular trips to the summit each day; and the *Pike's Peak News*, containing the names and addresses of all on board, is printed at the half-way house while we are up the peak, and sold to the passengers on the return trip.

My next stop was in Denver, where I spent two days meeting face to face those whom I had long known through correspondence and in a business way. I found that the L. A. Watkins Mdse. Co., who had succeeded Barteldes & Co. in handling our supplies, had done a fairly good business considering the conditions which existed last season. Frank Rauchfuss, secretary of the Denver Bee-keepers' Association, and manager of the bee-supply department in Watkins' warehouses I found to be a very pleasant and engaging young man of considerable experience as a bee-keeper. In company with him I visited Mr. W. L. Porter, who has some 900 colonies of bees in various apiaries near Denver. Mr. Porter produces both comb and extracted honey, the larger part, I believe, being extracted. He has a local market for all he secures, much of it put up in glass for retailing. I was agreeably surprised to find in the number of places where I stopped throughout the West, so good a home market for choice honey at very fair prices.

Mr. Porter has been carefully testing hives of 8 and 10 L. frame capacity, and comparing them. He at one time seemed to be in favor of the 10-frame size; but this year his preference is for the 8-frame. His honey is gathered chiefly from alfalfa, and is beautifully heavy, and light-colored. When one works up a trade in such honey, and is always careful what he puts up, to see that it is only first class, he may be sure of a permanent and growing demand, and at good prices.

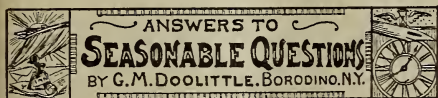
I spent a number of pleasant hours with J. C. Frisbee, who, in company with his father, R. K. Frisbee, is engaged in putting up honey in glass jars and selling to the retail trade both comb and extracted honey. Their honey seems to be lighter in body, and to remain liquid much longer, than most alfalfa honey which I have seen, judging from the samples which I examined.

Many bees in the vicinity of Denver were afflicted last year with a peculiar malady which wasted away some apiaries entire; and some whose bees were not entirely destroyed were so discouraged by the experience that they sold out at a great sacrifice. This disease was mentioned by R. C. Aiken in an article on p. 479. I found, when I reached Omaha, Neb., and stopped there with R. M. Lewis, one of the principal bee-keepers of that city, that the bees there this year seem to be affected in the same way as those were last year around Denver. The disease seemed to affect the bees in much the same way as paralysis, and yet it seemed to be more fatal, strong colonies wasting away in a very short time. It was confined to a limited area about Denver last year, and this year in Omaha the bees affected are mostly within a radius of five miles. It has puzzled the bee-keepers, and is puzzling them to this day to know the cause. There are large lead and silver smelting-works in both territories affected, and some have assigned the cause to the poisonous gases from the smelting-works. But if that were the cause, why should it not operate every year? It is surely something that should be thorough-

ly investigated, for it is a source of very great loss to the bee-keepers subject to its ravages.

Denver is a very fine city, beautifully located in sight of the mountains with their summits of perpetual snow. One peculiarity of Denver which stands out in marked contrast to any other town or city I have visited is the fact that all its buildings, including the dwelling-houses clear out to the suburbs, are either brick or stone. No wooden structures are in sight anywhere. This gives the city a solid, substantial look. Wooden building-material has been expensive because it must all be imported, while brick and stone are plentiful; besides, a city ordinance is no doubt the chief cause of the absence of wooden buildings.

On my trip through Iowa I made E. Kretchmer a short call, and found that he, like the rest of the bee-supply manufacturers, had had a good trade the past season. I also spent a day in Des Moines and another in Chicago; but I shall have to wait till the next issue the account thereof.



#### SUGAR SYRUP FOR BEES—HOW MADE.

*Question.*—Will you please tell us in the next issue of GLEANINGS how to make sugar syrup for winter stores for bees? I think you have given your recipe for syrup for winter feeding in some of the bee-papers before, but I can not turn to it just now. The season did not turn out as well as we were promised at first, and hence many of us will have to feed.

*Answer.*—Years ago we were told of many plans to make a feed of sugar that would answer for winter stores for the bees; but upon using most of the plans I found them to be failures along certain lines, the one most common being that the syrup would crystallize in the feeders and in the cells after being fed. Not being satisfied I went to experimenting in different ways; and while studying over this matter it occurred to me that, years before, during some experiments made to prevent honey from granulating, I had used sugar in one of these experiments, which syrup had accomplished the desired end, that of keeping the honey liquid when cold weather came. I said to myself that, if sugar syrup would keep honey from granulating, why would not honey keep sugar syrup from crystallizing? So the next batch of syrup was made as follows:

Fifteen pounds of water was weighed out and put into a tin vessel of suitable size. This vessel was then put over the fire till the water was brought to a boil, when 30 pounds of granulated sugar was poured in, stirring the same briskly while putting in, so that it would not settle and burn, as such sugar is sometimes liable to do if not stirred. The stirring was kept up till the sugar was partially dissolved, when it was left over the fire till it boiled

again, when it was skimmed if impurities arose. It was then taken from the fire, when 5 pounds of good thick honey was poured in and stirred for a moment or two, so that the whole should be mixed thoroughly. This honey proved to be just what was needed, for syrup thus made remained liquid day after day, when not fed to the bees immediately, although with this formula the syrup was nearly, if not quite, as thick as the best honey. And I found that, after keeping it for several months by way of experiment, it proved as good as ever, not crystallizing or souring at all. Thus I had a feed that was easily made, and that would remain good whether in the hive or out; and after years have passed I use the same whenever the season has been so poor that I am obliged to feed in the fall.

The honey first used was extracted basswood honey; but of late years I have used that which has accumulated from the wax-extractor, no matter how badly mixed or of what color. I find that honey coming from the solar wax-extractor, by way of a little honey being in the bits of comb and wax placed there for melting, is always the nicest kind for any manner of feeding, no matter what the color may be, for the heat of the sun so ripens and thickens it that it is always prime for winter stores. If no honey can otherwise be had, that from partly filled sections will answer.

#### PREVENTING SWARMS IN AN OUT-APIARY.

*Question.*—If you were going to run an out-apiary for comb honey, how would you manage to prevent swarming?

*Answer.*—Well, as I have an out-apiary that is run for comb honey, perhaps I can answer this by telling what I do at that out-apiary each year. If I wish any increase I proceed as follows: Placing a hive all rigged with frames filled with foundation or empty combs, on the stand of one of the populous colonies which I think may be getting ready to swarm, I next set the sections from the old hive on the new, when I proceed to shake all of the bees off their combs and out of the hive, letting them run into the hive I set on their former stand. I now place the combs of brood back in the hive again and carry the whole to the stand of another populous colony, setting this last colony on a new stand from 10 to 100 feet distant. The sections are now put on the hive of brood, into which the bees returning from the field are now pouring. When they find that this is not their old home they are somewhat homesick; and if their old home is nearer than ten feet, many of these bees will find it, and, setting up the joyous hum of "home is found!" will call most of the bees away from the brood, which is not a desirable thing; hence I place the removed hive 25 feet or more away if it is possible to do so. I generally carry along with me some nearly mature queen-cells and give this made colony one of these in a queen-cell protector. This protector keeps the bees from destroying the cell till they realize their queenless condition, which happens a little before the cell hatches, so that, when the queen emerges, she is kindly received, and in due time becomes the head of

the colony. In this way one new colony is made from two old ones; all desire for swarming is broken up, unless the season of surplus honey is long drawn out, while all three are in the best possible condition to store surplus, after a week or so has elapsed. If I wish no increase I usually cage the queen just before the bees think of swarming, leaving her caged for ten days, when the hive is opened, the bees shaken from every frame, so as not to miss any queen-cells, when all such cells are cut off, which makes the colony hopelessly queenless, except for the queen in the cage. If this queen is a good one I use her; if not, I give them a young one brought with me from my queen-rearing yard, or obtained elsewhere. But, no matter what queen is used, I proceed as follows: After removing the stopper from the cage containing the queen I wish the colony to have I insert another, this latter one having been prepared beforehand by boring a  $\frac{3}{8}$  hole through it. Into this hole is stuffed all the candy (such as is used in shipping queens) that it will hold, and the hole should not be less than one inch long. Having the queen and cage thus fixed, the cage is placed in some frame having a little vacant space free from comb, near the bottom; or if none such is found, I make a place large enough, when the hive is closed. To eat through this candy takes about five days, or the colony is without a laying queen for fifteen days, which time I find amply sufficient to stop all desire to swarm. While no eggs are being laid for the fifteen days, still the colony has a queen all the time, and, so far as I can see, work goes on in the sections nearly or quite as well as if the queen were out at liberty.



WHY SO MUCH WHITE CLOVER THIS SEASON?  
PAPER IN FOUNDATION; SOWING  
SWEET CLOVER, AND WHEN.

In *Stray Straws*, page 549, you speak of the wonderful growth of white clover this year, and as to the cause. I think it is accounted for by the root growth during the dry seasons when the clover scarcely appeared above ground, but was gaining in strength under ground from its long rest.

You did well to conclude to retain the paper in the packing of foundation.

If Dr. C. C. Miller will lay the material for sections on the grass under a good large apple-tree he will not need to use any water in the grooves, and the sections will be much nicer in folding.

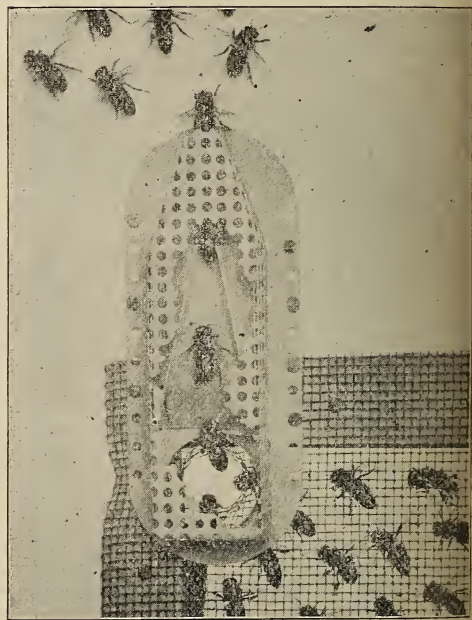
In regard to the sowing of sweet clover, as per inquiry on page 573, you can safely sow in spring as early as the ground will work well, say in March if possible. The ground should be well plowed and harrowed before the seed is sown, and once harrowed after sowing.

Then the ground should be well firmed, as Peter Henderson would say, if living. I find it a good plan to take about four or more horses, and hitch them abreast and drive them back and forth over the ground until it is packed solid. If driven in straight lines the foot-marks of the horses will cause the clover to come up in rows, and will insure a good crop. This way of putting in clover of the kind mentioned has proven the best in the dry lands of Kansas; and, if the ground is dry, I think it will be a great help anywhere.

Cuba, Kan., Aug. 11. W. H. EAGERTY.

#### THE OPERATION OF THE HONEY-HOUSE PORTER BEE-ESCAPE.

We inclose herewith a proof of that better engraving of the honey-house escape that we



have spoken of several times. The original photo of this is, in our opinion, the most difficult thing ever accomplished in the line of photographing live bees. If you question it, we should like to have you try your hand at improving it.

R. & E. C. PORTER.  
Lewistown, Ill., April 24.

#### THAT NEW BEE-DISEASE; HOW THE BEES "EVAPORATED" IN ANOTHER CASE.

I see that you would like to hear from parties in regard to the new bee-disease. Bees were in fine condition here the first of July. We never had a better prospect. Hives were boiling over with bees. Some had commenced in the supers. I examined them again about the 10th or 12th of July. Now, you no doubt have examined a colony as soon as they have cast a rousing swarm. That is just as near as I can tell you how things looked the 10th and

12th of July last. Very few dead bees were in front of the hives. The weather was very warm about that time, or some or most of the brood might have become chilled, for there were not enough bees left to cover the combs. Queens, larvæ, and brood seemed to be perfectly healthy.

Bees in a circle of two miles seem to be affected, some more and some less.

At present writing bees are still reduced in numbers. Out of 50 stands there is not one pound of surplus honey in the yard.

On page 555 Mr. Whitcomb tries to make us believe that too much cold water is the cause of all our troubles. Now, did you ever hear of such a thing as pure water hurting bees in the month of July? He says, further on, that the water from the mountains in Colorado is cold, and that the bees drank, and were chilled. Now, it is facts that we want — no guesswork about it.



There is something wrong with the bees here now; that is one fact. I am not going to tell you what is the matter. I am like Dr. Miller—I "don't know." JAS. RAE.

Petersburg, Neb., Aug. 12.

[I talked with Mr. Whitcomb in regard to this very matter, at Buffalo. He stated that the water coming from the mountains, as it does, is very cold, and his experience has shown that ice-cold water is very injurious to bees. I do not know that I am competent to speak for him on this question, and therefore will ask him to write further as he may see fit.—ED.]

#### OBJECTIONS TO SOLDERING FRUIT-CANS FOR HONEY PURPOSES.

I have been reading Mr. Aikin's articles and your comments on pages 407-409, and 443, '4, in regard to honey-packages. It seems to me the fruit-can idea will be the cheapest; but the soldering of the top strikes me as inconvenient, both for the producer and the consumer. Fruit is generally used up at once after being opened; but honey will in most cases last for some time, and consequently the can will have to be tied up in some way to keep out impurities. This is impractical.

The grocers here sell an article called "butter oil," put up in quart fruit-cans. These cans have a small tube soldered on the top, through which this oil can be emptied. The tube on top is about  $\frac{1}{2}$  inch high and  $1\frac{1}{4}$  to  $1\frac{1}{2}$  inches in diameter. It has a cork about  $\frac{3}{8}$  inch thick, and above the cork the tube is filled with what seems to me to be plaster Paris. From 12 to 24 cans are in a box that is just high enough to hold can and tube on top. If the hole in the top of the can is punched outward,  and the tube soldered around this  beard, then the can may be perfectly drained of its contents. Besides the tube on top of the can there is a wire ring, by which the can may be carried. It seems to me a can of this description ought not to be much higher in price than the common fruit-can, and may be of some use till something better makes its appearance. At any rate, I believe it will not hurt, and may

be of some benefit if you consider this kind of can before you go into manufacturing any kind.

H. RAISCH.

Vineland, N. J., June 19.

[The difficulty of soldering up cans is not as great as you think, friend R. The very cheap soldering-kits now on the market, with directions accompanying them, make the operation of soldering the top on to the can a comparatively simple one.

The idea of using a tin neck on a can, with a cork, is very good; but the objection to any such thing as that is that it sticks up above the top of the can, and it is not practicable to tier one layer of such cans on top of another in one box. Cans that are soldered, however, are flat on top and bottom, and can be very easily packed in boxes, with little or no danger of leakage.—ED.]

#### POOR SEASON.

Noting the large crops of honey all over the land, I can say that we are not in it. Out of 35 colonies, spring count, I had 8 new swarms, and 5 starved to death at this date. I took from one to ten sections from eleven hives, and that is all dark and bitter. I have not opened the 1000 sections sent me last spring. Honey-flow ends here June 1st. No sale for the little I have on hand. As I must feed, the little will come in handy. J. H. ALLEN.

Box Elder, Va., Aug. 5.

#### BEEES CLUSTERING OUT; TILTING UP THE HIVE-COVER.

I see from a note in GLEANINGS that you are somewhat troubled about your working bees clustering on the outside of the hives in very warm or hot weather. Now, for your benefit, and it may be for other bee-keepers', I will state that I solved this question several years ago here in the South, and I see no reason why my remedy will not work equally well in the North. You could visit my apiary the hottest days that we ever have here (and many of my 200 colonies stand in the sun), and you could at any time find but few bees outside.

I work for extracted honey, and use the ten-frame standard Dovetailed hive, two stories high. If at any time bees begin to cluster outside I know the cause is heat and want of ventilation. I raise the rear end of the hive-cover one inch or less, according to the intensity of the heat, with a small block or a wedge-shaped stick. This will start a current of air through the whole hive, and the bees will soon proceed to business.

J. W. WINDER.

New Orleans, La., Aug. 11.

[The tilting-up of the hive-cover is quite an old idea. Sometimes it works and sometimes it does not—at least that has been my experience. But, friend Winder, don't you think that the tilting-up of the cover, while it may cause the bees to quit clustering out, may be letting too much heat escape? The super should be very warm—the warmest part of the hive. The method I advocated for making

the bees go into the hive does not call for cooling air-currents through the supers.—ED.]

#### HOW TO MAKE YOUR OWN BEE-FEEDER.

I have kept bees for over fifteen years, and have always made my own bee-feeders—first wooden boxes and lately a kind of pepper-box

feed, or it can be placed on the frames inside of the hive. As there is no bottom to the base I can fill the can with syrup, screw the cap on, then invert it and place it where wanted, giving the bees access to the perforations, and it will work on the atmospheric principle, so that the feed will run out no faster than the bees can take it. It will hold one quart and half a

pint. I have in use larger ones that hold a gallon, made on the same principle, or nearly the same, out of the gallon cans that are advertised on page 24 in your catalog. I make the can tight so no air can get in; and, after making an opening, and soldering a screw top (the screw top can be placed on the end or side of the can over the opening), I solder a strip of tin one inch wide around on the under side of the can, so as to raise it up and have it answer the same purpose that the base does to the other. I make the projection by soldering on a narrow strip of tin against an opening made for the bees to get under on the under side of the tin rim.

J. L. HYDE.

Pomfret Landing, Ct., May 14.

#### LANGSTROTH MONUMENT; ANTS A NUISANCE IN KANSAS.

Inclosed please find amount for the Langstroth monument fund. I should like to say to you that the monument should be made of stones that would be low and heavy rather than slim and tall, for the reason that they should last for all time, as it were. I should like it if the upper stone of the monument could be made in the shape of a bee-hive, say like the chaff hive put up by the A. I. Root Co.

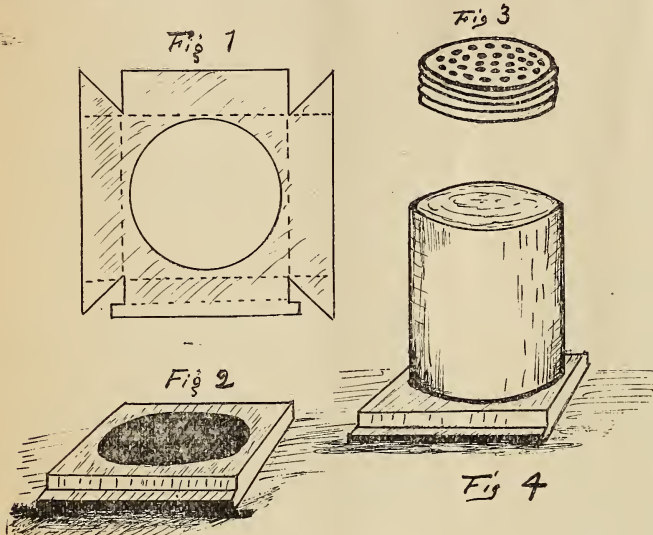
In looking over the A B C of Bee Culture I find in regard to ants that they will do no damage; and in proof of the assertion we read they did not trouble the hives containing old honey. Now, old honey is not the nectar from the flowers that new and fresh honey is, as I understand it. The ants out here get up a raid on a colony, and, like Grant in the Wilderness, they get all the help they can. The raid is made in the night time, and the morning sees all the bushwhackers at home again. I tell you it will not always do to let them have the field to themselves. I use a crusher made like a man's slipper, but made of wood, with the bottom shaped like an old log canoe, or dugout. Attached to the wooden foot is a long handle. I run the crusher sideways over the ground, and crush the ants quite fast. I find that after a rain is the best time to crush the ants. I do not get rid of them all, but I keep the numbers down so that the bees can master them. The little black ants are the worst.

feeder that does not cost me much, and will answer the purpose better than any that I have before seen or described. No doubt many a bee-keeper who has old fruit-cans or the like lying around would like to know of some good use he could put them to. To such I will describe my method of converting them into bee-feeders.

First take a quart or 3-lb. can, such as tomatoes or canned squash is put up in, and cut out one end, if it is not already out, and solder on to this end a screw top pricked full of holes like Fig. 3. You will find the screw top that you will want, mentioned in Root's bee-keepers' supplies, page 24. Get the 4-inch cap.

Fig. 4 is a feeder completed. After the screw top is soldered on to the end of the can, Fig. 4, it is inverted and pushed through the hole of a box or base, Fig. 2 (which is made for the purpose), far enough so the screw top will be on the under side of the box, the remainder of the can being above, as at Fig. 4. This box is about one inch high, without bottom, and is made in this way:

Take a sheet of tin a little over 6 inches square, and cut into it about one inch, and clip part of the corners out as shown in Fig. 1, and then the sides are bent over where the dotted lines appear, which forms the box. You will see some dotted lines on the lower side, which should be bent out where these dots are, and the ends of this part bent down so as to form a lip that will slide into the entrance of the hive. This projection is shown at Figs. 2 and 4. I use these, either as entrance feeders by putting the projection into the entrance so no robber-bees can molest the



## COMB-BUILDING AND WING SOUND.

You will find in the A B C of Bee Culture, page 177, fortieth line, "As nearly as I can discover, they moisten the thin ribbons of wax with some sort of fluid," etc. Don't they use the acid from the sac wherein they carry the poison, to help them work the wax? and is not that the cause of their jumping about so, and letting the comb stand in a partly finished state until the poison becomes diffused in the atmosphere, and they can go on with the work again. On page 230, 16th line, you say again that "the sound is produced by the wings." I think it is produced by the air-pipes—the ones used to inflate the air-bags, and which all bees use to fill themselves with before taking flight. These things are of little consequence; and if I were writing for publication I would not mention them; but I wish you to give them your attention and make of them what you can.

WM. H. EAGERTY.

Cuba, Kan., Aug. 20.

[You are perhaps right in both of your suggestions. I would refer them to Prof. Bruner, of the Nebraska State University, at Lincoln, Neb.—Ed.]

## WINTERING IN THE DANZENBAKER HIVE.

The question was asked at the bee-keepers' convention at Buffalo, if my hive would winter bees as safely as the Langstroth, with deeper brood-frames, which measures 10 inches from top of hive bottom to cover. My hive has a deeper space,  $\frac{7}{8}$  inch, under the frames, with  $\frac{1}{2}$ -inch top-bars in brood-frames, making  $8\frac{1}{2}$  in. net from hive-bottom to hive-covers, only  $1\frac{1}{2}$  in. less than the L. hive, and  $6\frac{3}{4}$  in. depth of comb surface, or only  $1\frac{1}{4}$  in. less than the 8-frame Dove. hive, which has 1088 sq. in. of comb surface, while the ten Danzenbaker frames have 1080 inches of comb surface; and being nearer square, and more compact, with thick closed-end frames and closed air-spaces forming  $2\frac{1}{4}$  inches protection at the ends of combs, must have the advantage under like conditions as a safe wintering hive.

In GLEANINGS, March 1, 1890, p. 168, appears a report of the Wisconsin convention, by A. I. Root. In this report, as an allusion to the B. Taylor shallow hive and its safe wintering, Mr. Root says of it:

Mr. B. Taylor, of Forestville, Minn., contributed a good deal to the meeting. He brought a model of his bee-hive, which he has had in use 25 years or more. He calls it the "Handy" hive. Fully 25 years ago he formed the idea of having the surplus apartment exactly like the brood-apartment—that is, so far as size and shape were concerned. Of course, the brood-combs would have to be made shallow in order that they might answer tolerably for holding the frames small enough for surplus. Accordingly he makes all stories of his hive so as to hold a frame only  $4\frac{1}{2}$  inches deep. This depth was decided upon from the fact that fence-boards 6 inches wide were always to be had, of pretty fair lumber, and at a comparatively low price. The hive is made with beveled joints, to keep out wind and rain, and to keep them in place, very much as I designed the Simplicity hive originally; but his hives are (as mentioned) only about half the depth of the regular Simplicities. As he makes the hive square instead of oblong, the shallow frames contain from three to four pounds of comb honey. He has a special mode of manipulating them so as to get large yields of surplus comb honey, and also, so as to manage artificial swarming in a very expeditious and certain manner. He winters in the cellar, and prefers only one story for wintering, even with combs only  $4\frac{1}{2}$  inches deep.

I think it may be said, that, if frames  $4\frac{1}{2}$  in. deep winter bees safely, one  $7\frac{1}{2}$  will; and when the inside dimensions differ only  $1\frac{1}{2}$  in., there can be no difference under like conditions; but as my 10-frame hive is more compact, and nearer square, than the 8-frame L. hives, with both ends better protected by the space of  $2\frac{1}{2}$  in. from outside to edges of the combs, it must be safer as a winter hive, as many reports have shown. See my book, "Facts about Bees," p. 61.

F. DANZENBAKER.



Bees have done well this season. I have extracted as much as 200 lbs. per hive.

Lisbon, Tex., Aug. 14.

J. D. GIVENS.

I have 120 lbs. of comb honey from one hive that did not swarm. How is that for a poor locality?

R. STEHLE.

Marietta, O., Aug. 11.

I have some hives from which I took off 98 lbs. of honey, June 28. I think they will have 70 lbs. more.

O. F. WITTE.

North Amherst, O., July 5.

This closes one of the best seasons for honey that this section has ever had. Almost every bee-keeper's bees have done well. My stock did excellently.

DR. S. H. HURST.

Laconia, Ind., Aug. 12.

My bees did well this year. I have taken up to date 4500 lbs. from 100 hives; shall get 6000 or 7000 lbs. this season. I am going to sow one bushel of horsemint seed. I had some sown this year. I think it paid.

Elmont, Tex., July 30.

J. F. TEEL.

## LARGEST CROP EVER HAD.

I have the largest crop of honey I ever had—white clover. I had one colony that made 90 lbs. in sections, as white as snow. If it ever clears off I shall have another crop, from goldenrod. I have about 100 basswood-trees but they didn't have any blossoms on this year.

MILLARD MAPES.

Monroe, N. Y., Aug. 5.

ONE COLONY IN THE SPRING, INCREASED TO 8; \$19.00 WORTH OF HONEY; AND "MORE TO FOLLOW."

I have had success beyond expectation. I started last year with one stand of bees; have increased from same, and have to-day 8 stands; received a big spring crop, and am assured of a good fall crop, as my supers are about full, and some are being capped. I sold honey from my spring crop, amounting to \$19.00; and still had plenty for my family. Now I have the fall crop. I never had any experience before in bee-keeping.

M. M. ANDERSON.

St. Louis, Mo., Sept. 7.



STIRRING honey very much unnecessarily is apt to make honey candy prematurely, said J. F. McIntyre, of Fillmore, Cal., on the floor of the Buffalo convention.

E. A. WANDER, of Hartford, Conn., at Buffalo, gave the result of an experiment of his with 8, 10, and 13 frame hives. As I remember it, his 8-frame colonies gave him an average surplus of 37 lbs. of honey; his 10-frame colonies 56 lbs., and his 13-frame colonies 113 lbs. Perhaps in another locality the result might be very different.

MR. E. T. ABBOTT, of St. Joseph, Mo., at the Buffalo meeting, said that, in his opinion, it was a wrong notion that the small bee-keeper and the farmer and the amateur bee-keeper were the enemies of the specialist honey-producer. "Why," said he, "they are our best friends." The product that they put on the market could not compare with what he could produce and sell, and he thought they actually helped him to make sales at a much higher price for his honey.

#### A NEW IDEA.

IN a paper that R. C. Aikin sent to the Buffalo convention, he put forth the rather startling idea that, in his opinion, it might be more profitable to take extracting-comb, cut out the honey and all, "squash" the honey out of the combs by passing them between rollers, and then melting the wax. His point was that extracted honey was going down in price, and wax going up; that wax and honey, sold separately, would bring more money than if the combs were extracted in the ordinary way, and preserved. This met a protest on every side, and it was mainly to the effect that wax in combs is much more valuable to the bee-keeper than the same wax in cakes.

#### A SAD AFFLICTION AT THE HOME OF W. Z. HUTCHINSON.

WHEN we saw our friend W. Z. H. at the Buffalo convention, looking brighter and happier than usual, little did any of us imagine the sad blow that he was so soon to be called upon to endure. We have been aware for some time past that both his good wife and daughter Ivy have been suffering from a peculiar mental affliction; and we knew, too, they had been sent to a sort of asylum for treatment. On the Saturday afternoon after the convention, Aug. 28, the mother, it seems, had a sudden stroke of her old trouble; and before friends could interfere she had chloroformed little Fern, only five years old, and almost succeeded in taking the life of the afflicted older daughter. Of course, she is now in charge again of the asylum, where she

is supposed to be in safe keeping. This is one of those very sad affairs for which we can hardly call anybody to blame. Mrs. Hutchinson was supposed to be much better, and had been at home some time, if I am correctly informed. May God help our afflicted brother through this his great and terrible ordeal.—A. I. R.]

#### DEATH OF DR. JESSE OREN.

ABOUT the time I first turned my attention to apiculture (August, 1865), Dr. Jesse Oren also became interested in introducing the Italian bees in his locality, Laporte City, Ia. He soon became, with myself, a frequent contributor to the *American Bee Journal*, then newly started, and for many years his name was almost a household word among bee-keepers. Some of you will remember that, during my visit to Florida, I was most pleasantly entertained at his residence in Daytona. When I offered some apology for going to a private home when I was obliged to be particular, and, as it might seem to some, fastidious, about my diet, he and the family hastened to inform me that it would make them no extra trouble at all, for the doctor had been obliged for years to abstain from every thing containing the least particle of starch or sugar. His trouble was diabetes. When I asked him in regard to the matter, he told me he should live but a short time unless he were thus particular in regard to his diet. Of course, they gave him all the variety they could without overstepping the line that through years of suffering had been mapped out by himself and by the advice of other physicians. He was a devoted Christian, and was ready to go when the Father called, for he had been many long years living a life of "thy will, not mine, be done." His death occurred Aug. 26, in the 73d year of his age, in Laporte City, Ia. From a local paper we quote:

Examination shows death to have been caused by suppurating of the gall-bladder, due to the presence of a large gall-stone, and an abscess of the upper portion of the left lung, the result of pneumonia.

Dr. Oren was a man of considerable wealth, and I think he told me in conversation that the greater part of it had come either directly or indirectly from bee culture. He produced large crops of honey year after year for so long a period without failure that he has been quoted largely as an example of what persistent care and attention may do in our industry. For many years past, on account of his health, he has been passing his winters in his beautiful home at Daytona, Fla.—A. I. R.

#### THE EFFECT OF PREMATURE PREDICTIONS OF THE HONEY-FLOW.

MR. P. H. ELWOOD, at the Buffalo convention, expressed regret that the editors of the bee-journals had predicted a remarkable honey year when subsequent reports seemed to show that the season was not as good as had been expected. The effect of this advance talk he thought had been to lower unnecessarily the price of honey.

There is truth in what he said, and I am willing, so far as GLEANINGS is concerned, to

plead guilty—at least to some extent. From Mr. Elwood's standpoint, or, in fact, from the standpoint of any bee-keeper in York State, the season had not been as good as the last; but in other States I think it has been very much better, if we except also the basswood-growing regions of Wisconsin, Iowa, and Minnesota. All through York State I found that clover had done very much better than it did last year; but the entire failure of basswood very materially dropped the general average. It is easy to see that those States that have generally secured good crops from basswood, owing to the absolute failure from that source, have not had, comparatively speaking, as good a crop as last year. But the great majority of locations throughout our country have given far better averages, as basswood does not grow in those places.

This suggests a question: Suppose there could be no question about it of honey-flow being much better than for years past—would it be wise to publish the fact? or would it be better to let the situation be known? I must confess that, so far as we are concerned, our predictions for the future will be conservative rather than otherwise.

#### SHIPPING COMB HONEY.

A GOOD deal of discussion took place at the Buffalo meeting regarding the best methods for shipping comb honey by freight. Several took the ground that it was bad policy to put cases of comb honey in a large protecting-crate; that the honey was more liable to be broken in such crates than when piled loosely in a car on straw. Others insisted just as strenuously that they never had success in shipping honey till they used these protecting-crates. Among those who advocated putting the cases in a car without the crate were Capt. J. E. Hetherington, Dr. C. C. Miller, and quite a number of others. These latter, *i. e.*, those who advocated the non-use of the crates, very often ship in *large* lots and in carloads; when the cases are piled up solidly in a car (combs parallel to the rails) there is not very much liability of the honey being broken. On the other hand, when honey is shipped in *small* lots, say in five or ten cases, it seems to go better in a crate, especially if it is transferred. But Mr. S. A. Niver, of Groton, N. Y., made the point that those heavy crates holding, say, ten or twelve cases, are pretty sure to be handled in York State on two-wheeled trucks. The crates were put on them the long way; and as they are trundled from one car to another the combs are jolted when held on at an angle of 45 degrees, and the wrong way at that, and this causes the breaking out when they used crates. It was hard for me to reconcile that statement in view of the fact that we had always had better success by using the crates than when we did not use them. When I went through York State I noticed that they used two-wheeled trucks where we in the central and western portion of the country use four-wheeled ones. On the latter, crates holding ten or twelve cases would be handled just as they should be—in a horizontal position.

On two-wheeled trucks, these crates would be trundled and bumped over the plank platforms at an angle of 45 degrees, as explained.

#### THE BIG BUFFALO CONVENTION.

THE Buffalo convention, while perhaps not the largest in point of numbers (and I do not know but it might have been the largest also), was one of the best conventions I ever attended. It certainly was a most representative meeting. There were bee-keepers present from California and the West, from Cuba, from all over New England, from different parts of the South, from every portion of York State, and from all over Canada. There was that extensive bee-keeper from California, Mr. J. F. McIntyre, who has 600 colonies all in one apiary; and there was the editor of the *California Bee-keeper*; that distinguished bee-keeper, O. O. Poppleton, from Florida; E. Whitcomb, from Nebraska; Fred L. Craycraft, from Cuba. There was also present from New York, Mr. W. L. Coggsall, who runs 13 out-apiaries aggregating something like 1000 colonies; P. H. Elwood, having a similar number; Capt. J. E. Hetherington; and—well, I don't know how many more. Besides these bee-keepers with their great ranches, as we might say, of bees, there were a good many more who owned colonies aggregating anywhere from 300 to 500 in number. Then there were the professional men, and the bee-keepers having anywhere from 10 to 100 colonies.

The convention hall was pretty well filled most of the time; and, barring a little passage at arms at one of the sessions, every thing passed off very pleasantly.

One of the special features of this convention were some grand talks from Capt. J. E. Hetherington, said to be the most extensive bee-keeper in the world; J. F. McIntyre, of California; G. M. Doolittle, almost the uncrowned king of the convention;\* Fred L. Craycraft, a bee-keeper who has achieved no small distinction in Cuba. And then there was plenty of good-natured sparring between Drs. Mason and Miller; Messrs. Abbott, of Missouri, and Doolittle, of New York; Hon. E. Whitcomb, of Nebraska, and others whose names do not come to mind just now. Wit and humor, intermingled with song, spiced the whole convention.

No small praise is due to Mr. O. L. Hershisser, of Buffalo, for the beautiful room he secured for us in one of those sky-scraping buildings, top floor, and the excellent entertainment, in view of the great crowds in the city on account of the G. A. R. encampment.

Unfortunately, the convention had no reporter. The one who had been secured disappointed us at the last; and supposing the report was being taken I took no notes; but I am just conceited enough to believe I brought home some ideas, and I hope to sprinkle them into our columns in the forthcoming issues, as time and opportunity may suggest.

\* Doolittle "brought down the house" a number of times by his happy speeches; and later on a strong effort was made to make him president, but he declined with thanks.

# APIS DORSATA AT THE BUFFALO CONVENTION.

It will be remembered that the Ontario Co. Bee-keepers' Association, made up of bee-keepers of Ontario Co., N. Y., passed a resolution recommending the general government to secure the giant bees. This resolution, after being published, received some unfavorable comment, both in the *American Bee Journal* and in these columns. At the Lincoln convention a counter-resolution was passed, to the effect that the members of the N. A. B. K. A. did not approve of the idea of asking the government to send an expedition for the big bee of India. Shortly after I myself said a good deal against what I termed the "scheme," honestly believing that it would be better to use the money that the government might see fit to give in the interest of bee-keeping for experimental work rather than to pursue after a will-o'-the-wisp—a bee about which we know very little.

On the second day of the Buffalo convention I could easily see that there was going to be a fight over the matter. The Ontario bee-keepers present at the Buffalo meeting, and a good many others of the York State bee-men, were anxious to secure the passage of a resolution from the United States Bee-keepers' Union favoring an attempt on the part of the government to bring *Apis dorsata* to our shores.

I had had some previous correspondence with some of the York State bee-keepers, prominent among whom was W. F. Marks, of Chapinville, N. Y. In one of his letters he said he would be glad to enlighten me in regard to the "dorsata scheme," as I had termed it; and that he hoped he might have the pleasure of talking with me on the matter at the Buffalo convention.

The result of the conversation, both with him and with others, showed that the government was willing to make some effort to get *Apis dorsata* to our country, but that it was *not willing* to give us money for experimental or any other purpose. Messrs. Marks, Ritchie, and others, in our private conference, could see no reason *why* we should oppose the idea when the government had plainly indicated its willingness to secure for us *Apis dorsata*, and when it had so positively declined to do any thing else. Why not ask the government to do what it felt inclined to do? The upshot of the whole matter was, that a compromise resolution was passed to the effect that the U. S. B. K. U. assembled at Buffalo favored *any* attempt to bring the big bees here.

Just what course the government will take remains to be seen. In the meantime The A. I. Root Co. will go on with its plan to get the dorsata. If our scheme fails, then we may be very glad to get government assistance; and it is very possible that our man and the government appointee may together be able to accomplish what either one alone could not. Possibly the government could do no better than to select our man; if so, we shall gladly give him up.

In any case, it is not proposed to bring dorsata into a northern climate, but to take them to some point in the South, say Florida. Mr. O. O. Poppleton has signified his willingness,

not only to take care of the bees, but to give them every attention.

# WHAT I SAW IN YORK STATE; THOSE IMMENSE FIELDS OF BUCKWHEAT.

JUST before this issue goes to press I managed to get home from my trip among the bee-keepers of the East, and just in time to get in a few editorials. I have not space in this issue to tell a tithe of the ideas that I gathered in York State and in Rhode Island, for *ideas* were just what I was after.

For the present I can only say this: That I visited some of the largest bee-keepers in the world, and witnessed their methods of management. Several told me I must see W. L. Coggsall and his lightning operators. Last year he took 78,000 pounds of honey, and this year 50,000. To see those men work, yanking the combs out of the hive, and again yanking the honey out of the combs, was a revelation to me. I'll tell you about it later.

Yes, I have been in locations where from one hilltop could be seen as many as 5000 acres of buckwheat-fields. I have been in counties where there were all the way from 2000 to 3000 colonies. I was in one location (Boomhower's) where bees had access, within a range of three miles, to 5000 acres of buckwheat-fields.

I have known before that New York was a wonderful honey State; but I believe I have had my eyes opened wider than ever before. Why, just think of it! single county conventions in York State being able to muster up 125 bee-keepers! I managed to take them all home in my Kodak, and I'll introduce them later. With the possible exception of California, York State has more bee-keepers and more colonies to the square mile (I was about to say to the square inch) than any other place on the globe; and I am not sure that even California should be excepted.

Now, lest any of you think it would be a good place to migrate to, I want to tell you now to stay where you are. Generally speaking, the whole of York State is overstocked with bees; and any "tenderfoot" who should go into that State thinking he might get a generous slice of some desirable territory not now occupied would be very much mistaken. Why, it seemed to me as if every farmer kept bees, and quite extensive apiaries too.

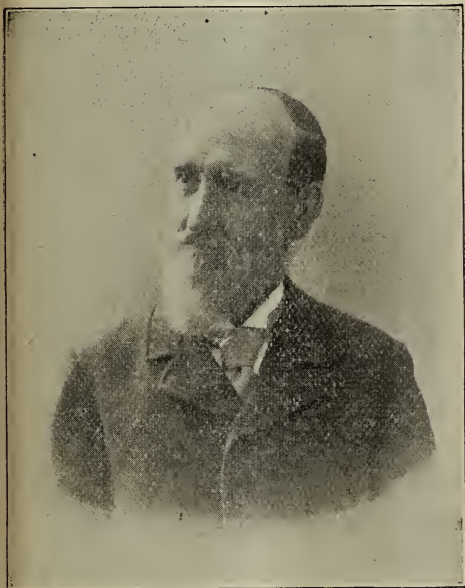
In order to cover as much territory as possible I used the bicycle, and both steam and electric cars; and even then I had to skip by many a bee-keeper I had hoped to visit. For instance, I had to pass by Mr. Egbert Alexander, of Delanson, N. Y., notwithstanding the fact that I actually passed through his place on the train; but for want of time I just *had* to go on. Well, I was told last year that this man, with his 900 colonies, secured *400 barrels* of extracted honey; but these barrels held only about 160 pounds each, I believe. But figure it up for yourself and even then you will find it gives an enormous crop in the aggregate—32 tons. And let me whisper in your ear that, so far as I could learn, the region round about Delanson is very much overstocked; and in saying this I am telling

the exact truth. I should be doing a very great injustice to York State bee-keepers were I to paint the field in such glowing colors that it would produce another Klondike or Oklahoma rush of bee-keepers.

Well, I have secured photographs illustrating apiaries and various new-fangled ideas; and in future issues of GLEANINGS I propose to give in detail something of what I have outlined above.

#### F. DANZENBAKER.

We herewith present a half-tone portrait of Mr. F. Danzenbaker, of Washington, D. C., taken on his 60th birthday. Having never used tobacco in any form, nor suffered a day's illness since his eighth year, he is to-day as active as most men of forty. He inherits



from his father and grandfather, who owned 300 colonies of bees in West Jersey, over 60 years ago, an all-absorbing interest in bees and apicultural pursuits. He says every day in the apiary is for him pleasant recreation, having combined bee-keeping and farming until, in his 50th year, he is satisfied to be known as a farmer bee-keeper.

Having spent many years experimenting to ascertain the best hives and methods for the production of comb honey he has brought out and patented some valuable improvements in hives and appliances. After using the Dove-tailed (or lock-cornered) hive eight years himself, he brought a finished model to us and gave us the first order for Dovetailed hives made in our factory. Since then he has brought to our attention the D. case, named by us after him.

The little book, entitled "Facts about Bees," contains much very valuable information in regard to a variety of operations in caring for bees, invaluable to a beginner, and well worthy a careful reading by the veteran

bee-keeper, even if he does not agree with Mr. D. in regard to the best system for producing comb honey. Indeed, it contains as much and as valuable matter as some books on bees we have seen published and sold for 25 and 50 cts.; yet this will be sent you for simply a 2-cent stamp to pay postage.

Mr. Danzenbaker, who has been spending a few days in Medina since the Buffalo convention, would like very much to hear from all those who have tried his hive the past season. Write him at Washington, D. C., offering suggestions or criticisms as you may have any to offer, telling him how you have succeeded with the hives.

#### GRADING HONEY.

It is really amusing to see the way different people interpret the same grading-rules. In order to secure uniformity of grade so far as possible, we have printed on a slip a copy of the grading-rules suggested on p. 566, Aug. 1st GLEANINGS, together with instructions for packing honey for shipment, one of which we send to each party to whom we make an offer for comb honey. The sample shipments which have come in, each graded (or represented to be graded) by those rules, are a study. The A No. 1 grade from one man will show up better than the fancy from another, and yet I have no doubt that both endeavored to grade to the rules to the best of their ability. It seems to be next to impossible to make a set of grading-rules that shall be sufficiently simple, and at the same time explicit enough to be so correctly understood that a mixed lot of honey would be graded practically the same by every bee-keeper who should undertake it. We feel as if we were no better off than we were without any rules at all, except, perhaps, that the honey is subdivided into classes, where before, many times, we received it all mixed together.

There is a great deal for bee-keepers to learn along the line of putting up their honey in the best possible shape for market. Those who are the most careful about grading are, as a rule, the most careful in their methods of producing honey; what they secure is all of a better average grade than that of their neighbor who is more careless and slipshod in his management. We have decided that, in order to know what grade we are buying, we must see the honey, or a sample crate of it, before we can be safe in filling orders by making direct shipments from the producer to the customer. There is just as much difference between customers as between producers in the matter of grading. As evidence, here is a case. A Michigan bee-keeper from whom we have bought honey several years sent a crate of honey to a customer in Illinois. On receiving it, he wrote as follows:

The honey you shipped came here in splendid condition; and to say I was pleased with it would be putting it mildly. In fact, I never saw prettier honey. When I need some more I'll know where to send for it.

FRED HASSMAN.

East Alton, Ill., Aug. 18.

The same producer sent another shipment to another customer, and he was very much dissatisfied.

J. T. C.



#### DREER'S GARDENING UNDER GLASS.

Ever since I have been engaged in gardening—I might almost say ever since I have been engaged in business—I have had at different times a longing to see a whole acre—a whole square acre, if you choose—entirely covered with glass, so one could go about and feel that he had elbow room and still be protected from wintry blasts. This longing was for the first time gratified when I caught a view of Dreer's immense establishment.

The group of buildings form a square, or pretty nearly so. The shape of the roof is shown in the cut. Every thing is glass, up above the frost-proof wall, which is perhaps 3 feet high. The ventilators are along the ridge.

Cut No. 2 gives you a view of the interior. The gutters are supported by a U-shaped iron frame that looks like a doorway. See cut.

You will notice from the engraving that these U-shaped doorways are arranged so as to assist in supporting the beds. Said beds are all made of iron, and supported by iron posts. The corners of the beds are rounded, as you notice, for strength, beauty, and to avoid bumping against the sharp angle. The bottom of the beds is slate. In fact, there is nothing about this building to catch fire and burn up, and no insurance is carried on the plant. The framework is of metal pipes, as you will notice. These pipes are filled with water, and a hose can be attached at any convenient point, thus giving water in abundance without any special piping for it. The heating-apparatus is shown beneath the beds, and the capacity is sufficient to protect perfectly the expensive contents of one of these green-houses. I said to our guide:

"My good friend, can you tell me in round numbers about what it costs to inclose a square acre as we see it done here?"

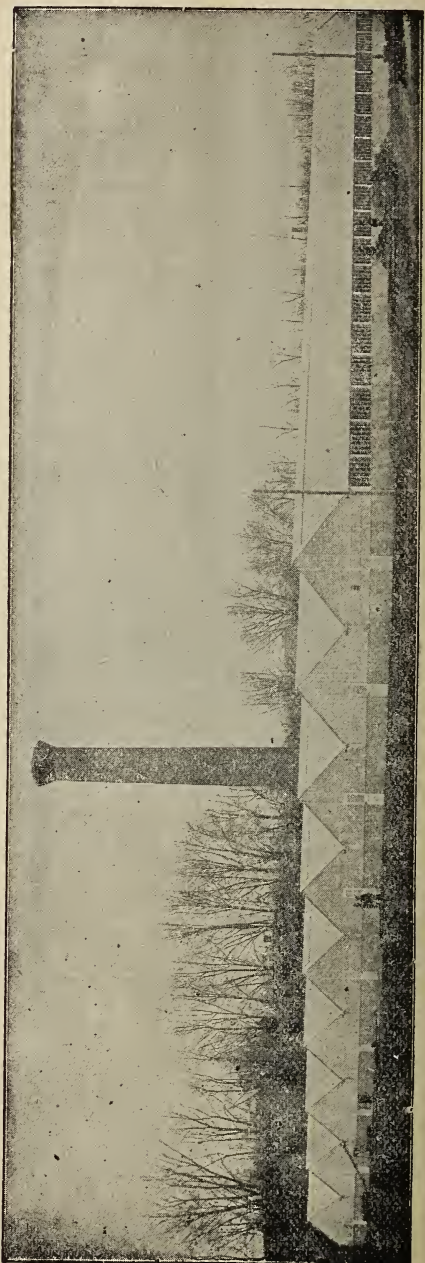
"Well, we have five houses just like this, each one inclosing an acre; and I believe they estimate the expense of each one at just about \$25,000."

"Well, that is about what I expected it would be; and, if I am not mistaken, the beautiful plants that have entirely filled and occupied every foot beneath this glass are worth almost as much more."

"Just about twice as much, Mr. Root. These rare and costly palms and other high-priced plants are worth from two to five dollars each."

Dear friends, it is impossible for me to undertake to describe the beauty of this exotic garden under glass. The mechanical arrangements and construction of the building are perfect, and the plants were each and every one models of thrift and beauty. I did not before realize that there was such a structure or such an array of beautiful plants anywhere on the face of the earth. The sight of it gave

me another of those thrills I have tried to describe. And this view impressed me the more because it indicated at a glance that man had actually triumphed over the constant effort of the elements to tear down and de-



A WHOLE SQUARE ACRE PROTECTED BY GLASS.

stroy. No wonder our good friend Dreer was able to write that little book that has proved so taking during the past year—"Vegetables Under Glass." Now, it is one thing to build such a structure, and it is another thing to get

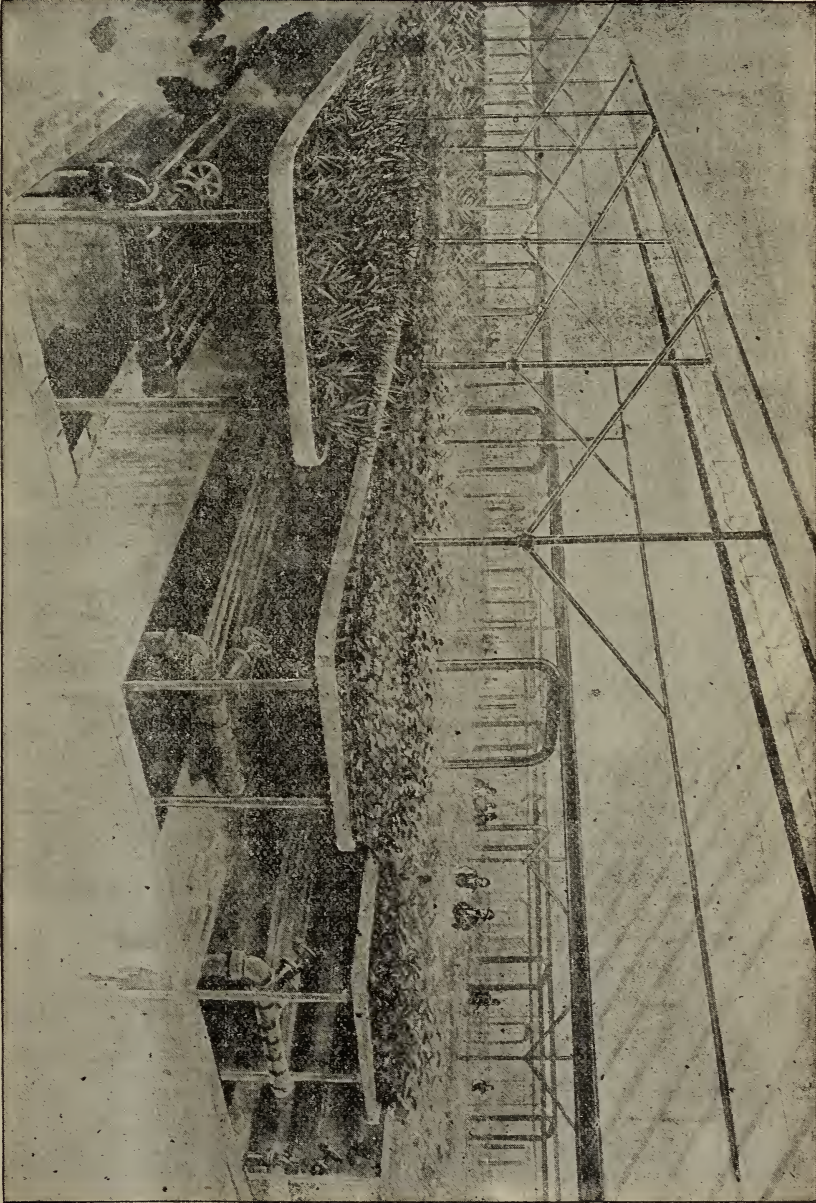
a man who will keep it running so as to pay expenses — high-pressure gardening indeed — and a high-pressure *man* or men to hold the whole institution *up* to the high-pressure point.

Now I want to give you a bird's-eye view of the whole group of buildings, five in number, as shown on next page.

The plant has been gradually built up, as we might expect; therefore there are several minor greenhouses that were built and in use before the other great structures covering an acre each.

You will notice at the right-hand front corner there is a group of cold-frames with sash

INTERIOR VIEW OF THE GREENHOUSE COVERING A SOLID SQUARE ACRE.

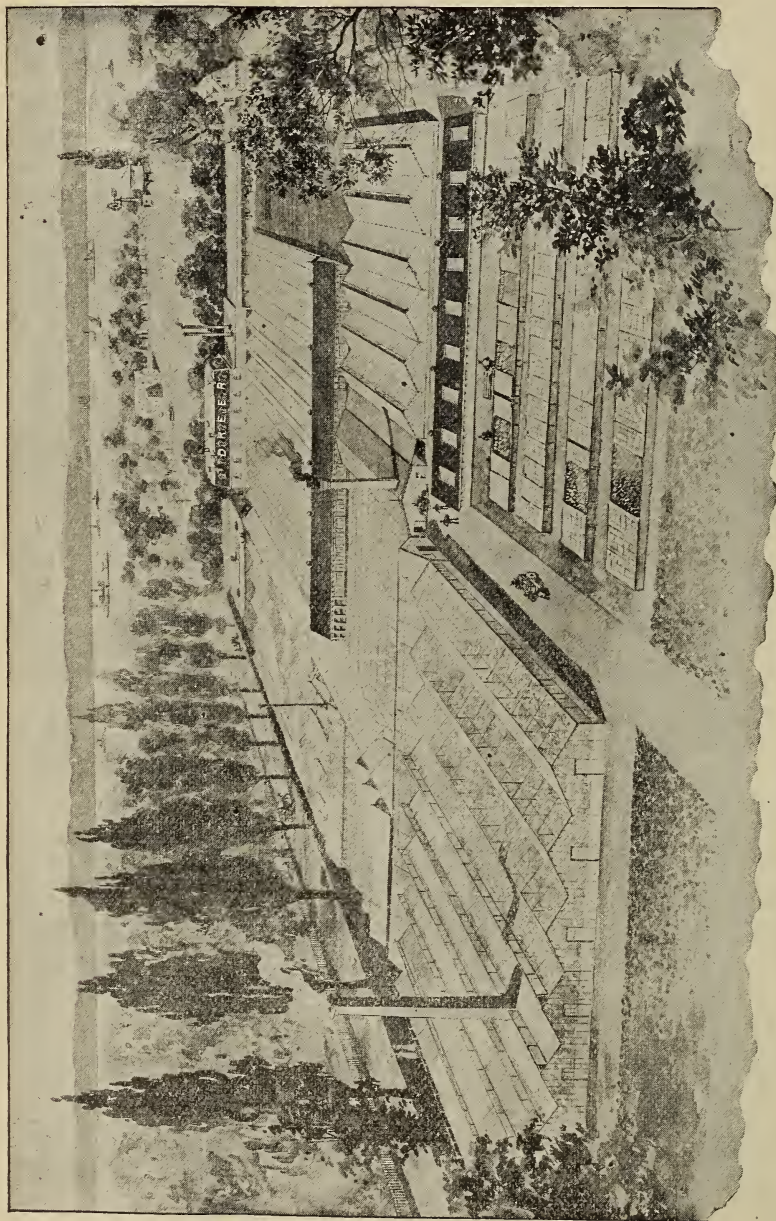


The one acre I have been describing is in the foreground at the left hand, where you see the chimney rising above. My impression was that one chimney and one set of boilers warmed the whole five acres; but as I now look at the picture I think I was mistaken.

over them. They have evidently planned these very much as I plan my quarter-acre under glass. The beds are of such convenient length that the sash can be piled up at each end without carrying them a very long distance. What do you suppose those neatly

kept beds contain just in front of the greenhouse, on the lower margin of the picture? Why, they are rows of strawberries where they are growing potted plants. If I remember correctly, the first row was our old favorite, Marshall; then I saw Brandywine, and other names familiar, on the neatly printed labels.

Norfolk Island pine. This pine attracted my attention both in California and in Florida. I have been told it is found nowhere else in the world except on that one island, and that it is quite difficult to grow them anywhere else outdoors. The minute my eye caught sight of several hundred of these magnificent little



GARDENING UNDER GLASS, BY THE ACRE.

Some of these labels actually came from The A. I. Root Co.

Near the upper right-hand corner was a sort of greenhouse covered with lath. It made me think of the pineapple plantations in Florida. This structure contained potted plants of the

trees, tastily arranged in beds like a systematic garden, I uttered an exclamation of surprise.

"Why! will these trees actually grow in the open air in this climate?"

"Not quite in the open air, Mr. Root. You see we have them partially shaded by the

slatted covering overhead. They will not endure a low temperature, neither can they stand the hot sun; but with this amount of shade we have discovered they do nicely, as you see."

Oh how I did want one of those beautiful plants! But it would be expensive to get it home, and then I am afraid it would never be cared for amid the rush of business round about the Home of the Honey-bees.

Oh, dear me! after going all the way to Philadelphia, and taking a whole week at that, I was admonished that, if I carried out my program, there was only about ten minutes left before train time. Our guide replied:

"Oh! but you *must* take a glimpse at the aquatic plants, if nothing more."

And then we went down hill a little piece where there used to be an ugly swamp or quagmire. Mr. Dreer had spaded out several square water-beds, and made walks between them on solid ground. Instead of a garden with raised beds, we had here a garden with sunken beds; and in these beds was every variety of water-plants, such as water-lilies—(so I should call them)—in full bloom, almost as large as a dinner-plate, and of almost all colors. Some of them had great green leaves floating on the surface of the water, as large as a small umbrella; and the *Victoria regia* had the edges of the leaf all turned up something like the edge of a jelly-tin, to keep the water from running over on top of the leaf; and this arrangement makes the leaf so buoyant that a young lady has safely stood on it without sinking.

I believe H. A. Dreer has the reputation of standing at the head of all growers of exotic plants in the United States; and in some respects I am inclined to think his glass structures are not excelled if equaled by those of any other man on the face of the earth.

#### MY PICKLE STORY.

Some time in the month of August I had been feeling that I must have a wheelride; so I arranged business for an absence of two days. But the Weather Bureau and barometer both said rain. In fact, it had rained a little—just enough to lay the dust; but it was cloudy, and the air cool, so I decided to start out and take the consequences. I got about 15 miles from home, and was enjoying myself hugely, singing, as I bowled along,

Praise God, from whom all blessings flow.

I changed my course a little to dodge the thunder-clouds; but it looked to me as if the thunder-clouds changed their course also. I was obliged to seek shelter once, then twice, and I began to meditate going back home. But the soil changed, and there was not very much mud. Then I came to a muddy streak, and became pretty nearly discouraged; but I got through it, and was congratulating myself that I was all right after all. Finally I came to a spot of very tenacious clay. The road had recently been worked clear over from one ditch to the other. There was not a chance to pick my way on either side; and the grass

up by the fences was soaking wet, and nearly two feet high. The wheel would have to go in the road or not at all. I got about half way through the bad spot, and finally the mud began to pile up; and so much collected on the frame I could scarcely push it; and when I essayed to walk, my bicycle shoes went down almost over their tops. I could neither go backward nor forward; and, in fact, I was in a "pickle." And this is the first part of my pickle story.\*

Some distance ahead a railroad crossed my road. I knew if I could reach that railway I could ride after a fashion between the rails. I managed to get out of this "Slough of Despond;" but by the time my wheel was cleaned off from that sticky clay, it was getting to be about supper-time; and the amount of strength I had expended in trying to force my way through and out of the mud made me about ready for supper, you may be sure. I got on along the railway track very nicely, and soon arrived at the little town of Smithville, Wayne Co., O. While I was eating my supper—that is, after my hunger was partly appeased—I noticed the people at the table were talking about pickles, and I was just thinking I might tell them something of one "pickle" that came in my experience that afternoon. Then they began discussing bushel boxes. Somebody said:

"Well, now, you may be pretty sure that Root's bushel box is all right. He is too careful a man to go ahead and make them by the carload unless he has them exactly right; and I tell you his box will stand law—you may be sure of that."

"I wonder how much business the Roots are doing this year, any way," said another. And then followed some other remarks that made me think I had better show my colors. Said I:

"Look here, friends; before you go any further perhaps I had better tell you that I am one of the Roots myself; and if I can help you in regard to the matter of the size of the bushel boxes, or any thing else, I am gladly at your service, especially since I have had such a nice supper."

Well, they were very glad to see me indeed; and when I told them I thought I had better stay over night they wanted me to go over and see their new pickle-factory. A great building has been erected. In fact, the whole thing was started since April. A great pickle combine in Cincinnati had volunteered to build a factory, equip it, and furnish a competent manager, providing the farmers round about Smithville would guarantee to grow 500 acres of pickles. The company agreed to pay said farmers 40 cts. a bushel for pickles not exceeding 3½ inches in length. All that were permitted to grow more than 3½ inches in length were to be sold for 12½ cts. a bushel.

Now, so far the contract was very pleasant; but before the company would go to work to

\*Constance accuses me of doing reckless things when off on my wheel—getting lost, and the like, in order that I may meet with spicy adventures. If she is right, I had found what I wanted this time, sure, for this adventure included spice, and a *pickle* besides.

put up the factory they demanded a donation of \$12.00 spot cash for every acre put out to pickles; that is, the man who furnishes the pickles must pay the company \$12.00 for each acre. The question naturally arose, "How many bushels of pickles can be grown on an acre?" Now, boys, we who have been in high-pressure gardening know something about it. If you have the ground just right, water just right, and *weather* just right, nobody really knows how many bushels of pickles an acre might produce. Six thousand dollars in cash is a good deal of money for farmers to scrape up and pay to the pickle combine. But I added:

"If you pay all the money that is required to build the factory and equip it, of course the institution belongs to the 300 or 400 farmers who furnish the money."

But somebody said very quickly, "Not so. The company will not go ahead and do a thing until we have raised the \$6000. Of course, we do not have to pay any thing another year. After the building is up and in operation then we get 40 cts. a bushel for our pickles, without any further payment on our part. They won't go ahead and put up the works any other way."

Now, friends, this does not seem to me quite right. It savors too much of the swindle that the *Rural New-Yorker* people have called the "creamery sharks." But on the other hand it may be that even a great pickle company would not want to furnish the capital to put up buildings in an out-of-the-way country place like this unless the patrons did something toward it. You will have to decide for yourself in regard to the right and wrong of it.

The building is 210 feet long by 150 feet wide, covered principally with barn boards, leaving cracks as in an ordinary barn. It is not necessary to have the building frost-proof, for pickles can not freeze when in the brine—at least, that was my understanding of the matter. The building contains 84 great tanks sufficient to hold 1000 bushels each. The tanks stand directly on the ground. They rise perhaps 3 feet through the upper floor. The pickles are taken in at the upper floor and dumped into the tanks. The farmers bring them in in bushel boxes; and here the discussion came in as to how large a box should be to hold just a bushel. I believe they adopted our bushel box. Pickles were coming in all along the evening, that had been picked during the day. Eight of these great tanks were already full; in fact, I saw *8000 bushels of pickles*. It requires 40 barrels of rock salt to each thousand-bushel tank. After the salt is shoveled on, the tanks are filled with water, and the pickles are then safe until they are wanted to put into vinegar. Only the best grade of white-wine vinegar can be used in order to have pickles that will keep indefinitely without spoiling.

I inquired if there were not a good many farmers who would not succeed in raising even the \$12.00 worth from an acre. They told me there were, undoubtedly. In fact, some of the 500 acres have been abandoned already. There were other men who had got their \$12.00

back from their acre, and quite a little besides. I saw  $\frac{3}{4}$  of an acre right in the town. It was a rich garden soil. This had already furnished pickles enough to make a good thing of it; and with suitable weather they expect to have pickles for a month or more from the same patch. I asked about the largest yield they knew of from a single acre, and I believe somebody secured last year for the Creston pickle-factory 200 bushels from an acre; but this was doubtless by some one who is an expert in *high-pressure gardening*.

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## OUR NEIGHBORS.

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Beloved, let us love one another, for love is of God; and every one that loveth is born of God, and knoweth God. He that loveth not, knoweth not God; for God is love.—I. JOHN 4:7, 8.

These words were given us by the beloved disciple. I have often thought of him, not only as beloved but as a *loving* disciple. He was a brave and a bright man, but at the same time he was a peculiarly affectionate and loving one. We know he was *brave* as well as affectionate, because he was the only one of the twelve who pushed his way clear to the foot of the cross and stood there while his master was crucified. Yes, and he was rewarded by hearing that same beloved master bid him look after and take care of the poor bereaved mother. It was this John who has so much to say, sooner or later, about love. In the language of our text he winds up by saying, "*God is love*." This fourth chapter seems specially devoted to love to God and love to each other. Now, let me confess to you that, in my earlier years, or, say, when I was a boy in my teens, I used to dislike to hear people talk about love. I do not know but I got something of a dislike toward the Scriptures because they have so much to say about love. From my point of view I thought it sounded "soft"—or, as the boys and girls say nowadays, "spoony." It might do very well for a mother to love her babe or for the babe to love its mother; and as I got along toward manhood I do not know that I had any particular objection to men and women loving each other; but I had a sort of feeling that they should talk about it when they were alone—try to keep it out of sight, as it were. When people talked about *men* loving each other it somehow or other conveyed the idea to me of men kissing each other; and, by the way, I suppose it is all right and just the fashion in some countries. Yes, even here in America—at least in some parts of it—I am told that male relatives, when they have not seen each other for a long while, have a habit of kissing each other as women do. Perhaps I might as well own up, while I am on the subject, that I am not yet converted to the fashion of promiscuous kissing, especially before folks. I once heard somebody say that a young woman should keep her lips for her husband or for her affianced lover; and I do not know but I would advise young men to do as much. Of course, this would not prevent a boy from kissing his

mother or sister, or allowing them to kiss him. There is not much danger that boys will become too well acquainted with their mothers and sisters. But let us now go back to this idea of loving each other.

When somebody explained to me that love meant *charity*, and charity meant love, or at least pretty nearly so, that put a slightly different construction on the matter. When I got to be a business man, and met other business men, I must confess I was inclined, as a good many business men are, to laugh at Christians, and to call them soft and silly. And, by the way, I still think that many of the expressions used in prayer-meeting—at least some of the stereotyped expressions that *were* used in prayer-meeting when I was a boy—are rather unfortunate. I think the Endeavor Society has done very much to change these things, and to make religion a practical common-sense *every-day* business matter. The sentence prayers that have been recently introduced are a grand improvement over the long stereotyped prayers of years gone by. May be I am "built that way," as the boys say; but a sentence prayer is often about all I can handle and comprehend at "one dose." I do not mean to say that those long old-fashioned prayers were not good. As I came to understand them better, after I became a Christian myself, I was many times impressed with the sublimity and grandeur of the thought expressed. It was often, however, "away up in the skies;" and when the good old deacon who uttered those sublime and lofty prayers cheated his neighbor in trading horses—why, I lost faith. I do not think this happened very often; but I do think the prayers of olden times were further away from the practical lives people lived then than the prayers of the present time are from the lives we are living. Some of the older readers of GLEANINGS can remember when I first got a glimpse of what the religion of Jesus Christ and Bible teachings really mean. Let me explain a little by an illustration right here.

A few days ago a man ordered some buckwheat, and asked particularly to have us tell him all about preparing the ground and sowing it, for he was entirely new to the business and wanted us to be sure to send him our circular on the cultivation of buckwheat, as it was so late in the season he would have to go at it at once and get the seed in as soon as received. The seed went promptly by the first train; but his request for that circular, and his explanation that he knew nothing about growing the plant, were entirely passed by. The clerk who receipted the money said she supposed they always put a circular in each bag of seed. The man who sent the seed said he thought the clerks in the office answered his request. Now, we have arrangements to prevent just such omissions as this; but some way or other his kindly request, accompanied with the cash, received no attention of any kind. Then he wrote again, explaining that his seed was received, but not a line of directions. I was a good deal stirred up, and remonstrated. I said that, on general princi-

ples, everybody who has a hand in business should have enough *love* for his fellow-man so that he would not do things of this kind, and I think still I am right about it. Genuine love toward our neighbor is worth more in business and everywhere else in life than any thing else *in the world*. I hope you have all read Drummond's little tract, "The Greatest Thing in the World," for he agrees with me exactly. Paul tells us in that wonderful chapter, that, if we give all our money to the poor, and our bodies to be burned, and have not this kind of love, it amounts to nothing.

Now, please excuse me for taking myself as an illustration. Years ago growing buckwheat was a hobby of mine, as you may know. I asked questions of farmers, got suggestions and hints from the readers of GLEANINGS, and put the whole of it in pamphlet form. I told you how to grow buckwheat before sowing wheat, so the buckwheat crop would cost almost nothing. I gave other short cuts and discoveries to the man handling it. I watched the printers as they set up the type for that circular, and read it carefully again and again; and then I said that every purchaser of buckwheat might have one free of charge; and every time I saw a letter asking for that circular on growing buckwheat it gave me a pleasant thrill. I said to myself, "Won't this fellow be pleased when he sees in his circular all that is known about growing buckwheat, especially if he *wants* to know?" Well, for years past, whenever anybody has asked any sort of question about buckwheat, I have greatly enjoyed mailing him a circular. It would be *impossible* for me to forget any sort of request for it. It is my *hobby*, you know.\* Mrs. Root says this may be all true, but that I have no right to expect that *other* people will be "enthused" over each one of my hobbies. She said my clerks would have to be more than human if they were. I replied that it was only good sound common sense to be enthused over what brings you your daily bread and butter. Just another point:

My enthusiasm over how to grow buckwheat made me in love with people I had never seen. Of course, it was a kind of "love at first sight." Now, some people do not believe in love at first sight. I do. I believe we ought to feel in love with people we have never seen, every day. We ought to *fall* in love with them, not the first time we see the person, but the first time we see a *letter* from him. We should be *glad* to find somebody who *needs* help. In that beautiful parable

\*Two things occur right here. The first is, that no particular credit is due me in this matter, for it was a sort of negative virtue. It was the outgrowth of my strong bent for hobbies, and for riding them to the uttermost. The second point is this: There is no kind of advertising in the whole wide world that can compare with this sort. A man may get out circulars of the most expensive kind, and he may sow them broadcast, and spend heaps of money in advertising his business; but if he has not this love for his fellow-man—love at first sight, as I have called it—for somebody who wants to have his questions answered patiently, his advertising amounts to almost nothing. As I look back over the years, I believe no one thing has done so much to build up our business as this matter of answering patiently, promptly, and thoroughly every inquiry, even in regard to the little details.

about the good Samaritan, the summing-up of the Master's teaching was that every human being is our neighbor *when he is in trouble*. If somebody is in trouble or distress, the Christian should forget all former differences, all circumstances and conditions, and spring to his rescue. I am inclined to think people do that a good deal nowadays. If a man were among thieves we would go to his relief. If he were a thief himself we would help him first and have him arrested afterward—that is, if he needed arresting.

Now, when this matter of love is presented to the world in that light, nobody objects to it. If a man wants to hire a clerk, and he is told the clerk is a Christian, he may or may *not* think that is a recommendation. It depends upon whom the employer is; but when he gets acquainted with his clerk, and understands that his professing to be a Christian means that he is instantly "in love" with everybody who patronizes his 'employer's establishment, then the employer says, "All right; that is good. If that is what you mean by *religion*, give us the religion—send it along—can't have too much of it."

Just last week two of us were spinning along toward Niagara Falls. It was between four and five o'clock in the morning. All at once there was a sharp report, and the tire of my companion's wheel collapsed in an instant. Our program was suddenly broken up. Near by, however, was a ticket-office of the Niagara Electric Car Line. The agent said there would be no train until about nine o'clock that would carry wheels; but we could go to the Falls right away without the wheels. We finally decided to send our wheels back to Buffalo so that they would be in readiness for us after we had visited the Falls. The agent assured us they would be in Buffalo long before we reached there. On our return we saw our wheels right in front of the office where we left them. He did not send them down during the afternoon, and we waited for them till eleven o'clock at night in order to have a spin next morning. The wheels did not come. We wanted the agent at Buffalo to trace them by wire, but he said they could not do it. Then we wanted him to send a message by the car-driver, to be sure to bring the wheels in by the first car on the freight department. He could not do that—in fact, he could not (or *would not*) do *any* thing. When we were ready to leave Buffalo my companion made a trip back to La Salle and found the wheels just where they were left. He rode one and led the other all the way to Tonawanda. Now, the agent of this electric car line, it seems to me, was *remarkably* destitute of the kind of love the apostle John is talking about. After he had got our money he did not care any thing about us nor about our wheels. He would not even take the trouble to write a postal card saying the freight apartment was crowded was passengers, and had been ever since we left. The agent at Buffalo was the same sort of man. Notwithstanding the plain positive promise given us that the wheels would be in Buffalo before we were, he thought that very likely the best thing we could do

was to buy another ticket back to La Salle, and get our wheels home in any way we chose. You may say this company was responsible. Very likely; but it was easier and perhaps cheaper to go after our wheels and bring them home than to fuss or bother with the trolley company.

Heretofore I have been speaking of the *lack* of this Christian love: let us now turn to a pleasanter side of the matter. At a recent meeting of our Anti-saloon League, in discussing finances some wonder was expressed at the exceeding liberality of a young business man in the northern part of the State. A member present said:

"Yes; and strangest of all he is the son of a saloon-keeper."

But another person who was present promptly added:

"You are wrong, Bro. ——. He is not the son of a saloon-keeper. He used to be; but by the grace of God his father has dropped the business and will nevermore touch it again."

At this point a Methodist minister from Cincinnati (Rev. James P. Mills) arose and spoke something as follows:

"Dear brothers and sisters, notwithstanding the great amount of urgent business to be got through with this afternoon, I think we can afford to consider briefly the little story I have to tell you. While I was pastor in the city of ———, in the Northern part of Ohio, I once invited a young man to sing in the choir, whom I knew to be of intemperate habits. I discovered he had a fine voice, and was trying to get some chance to make an effort to save him, as his father was a saloon-keeper. He seemed pleased with the invitation, and sang exceedingly well. But the next day my best soprano singer tendered her resignation, saying that, when things had got to such a pass that men were invited to sing when their breath smelled so strongly of liquors that one could scarcely stand near them, she thought it was time to 'draw the line.' I was in a dilemma. I visited the young man, and had a long talk with him. In fact, I had several talks. He gave up his drinking, and continued to sing in the choir. He was finally converted, developed wonderful abilities for business and in other ways, and very soon persuaded his father to give up the terrible traffic, and now is a magnificent Christian worker; and out of the gratitude of his heart he is now giving regularly these generous donations to our cause."

Dear friends, what do you think of a love like that? As his former pastor spoke, we could hardly repress the tears. It was his love for the unlovable that prompted him to reach out and plead so earnestly for one in the hands of the enemy; and it was this same love in the heart of the rescued one that prompted him to reach out in a similar way for his old comrades; and, through our Anti-saloon League, for thousands upon thousands throughout our beautiful State who are going down to ruin in the way he would have gone but for that faithful pastor.



### STRAWBERRY-GROWING, NO. 2.

The beds I described in our previous issue will probably be used for growing plants to set out in the fields rather than for producing fruit, although by far the finest fruit can be secured by this same plan of sub-irrigation. When your beds are all full of plants, as they will all very quickly be providing you follow up the work without any neglect, you will probably need to set them out in the open ground. This plot of ground, be it large or small, should be thoroughly underdrained. The objection to sub-irrigation in the open air, I have already given. When you have potted plants to spare, put them out in ground well worked up and fertilized, in rows 4 feet apart. I would put the plants about a foot apart in the row. Run through them with your hand cultivators or horse cultivators, keeping the ground constantly soft and mellow, and free from weeds. When runners put out, pot them exactly as we described in the beds, using the jadoo fiber described in our Sept. 1st issue, on page 648.

In order to facilitate cultivating, every time you go to work potting plants, stretch a string on each side of the row. Now, have this string as near the mother-plants that are putting out runners as you can, and have just the young plants potted inside of the string, and yet arrange to have no two nearer than five inches from its neighbor. We do this in order that we may keep running the cultivator clear up to the line made by the string. The space between the plants must be kept mellow, and free from weeds, by some of the various hand weeders. Below is a cut of an excellent one for this purpose.



A HAND WEEDER FOR WORKING AMONG STRAWBERRIES.

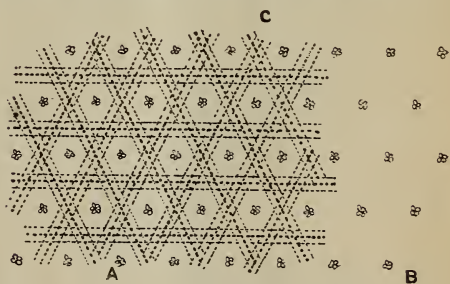
Now, the above arrangement is all right for growing fruit on the plan called the matted-row system, only we avoid letting the plants stand near together, on the plan that Terry recommends.

If you want to grow extra large nice fruit, there is a still better way; but there are several objections to this "better way." First, it is lots of work to do all the cultivating by hand. Second, it is lots of work to keep the runners off. Third, while you are growing fruit you can not grow plants for sale; and where the plants are rare and valuable, this is quite an objection. But, dear friends, you must remember that in strawberry-growing you can not grow the finest fruit and grow plants for sale at the same time. In bee culture you can not get great crops of honey and a great amount of increase of colonies in the same season. You will have to decide wheth-

er it shall be more valuable plants, or simply grow big berries and more of them. By the way, perhaps I should say that, while you are growing plants, all *fruit-stems* should be clipped off. You can not get the finest plants if you let the mother-plants that are sending out the runners bear fruit.

We will suppose, then, that you have in your sub-irrigating beds, and even in your very rich beds in the garden, kept off all blossom-buds. You have got to the point where you have hundreds or thousands of nice strong plants with great bundles of roots. They ought to be potted transplanted plants. What shall we do with them? Well, in the first place we want a piece of ground—the nearer square the better, although this is not particularly important. It should be at least an eighth of an acre; but if you have not that much we will try to get along with less. Have it well underdrained, then work it up fine and soft down 12 or 15 inches, or even 18 inches deep, if you can afford the expense. If the patch is small, get some expert gardener to spade it two "spits" deep, working in all the manure meanwhile you can get hold of. If you do it with horses, spread as much manure on the ground as can possibly be plowed under. Have a man follow the plow to pull the manure into the furrow; and then after the ground is plowed and harrowed, get some fine manure that will not clog the cultivators, and work in a lot more in the surface. Harrow it or cultivate it until it is fine and loose; then roll it until it is level; and I would take considerable pains to level it with a rake and shovel before rolling it.

In order to have surface drainage as well as underdrainage I would have a good deep ditch all around the piece, and have the ground slope gently from the center toward these outside ditches. Never let the water stand in puddles on your strawberry-patch.



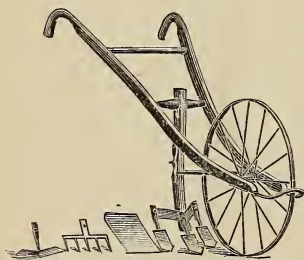
HOW TO PLANT STRAWBERRIES FOR HILL CULTURE.

Now with some sort of marker mark the plot, say from east to west, with marks as near 21 inches apart as you can make it. Any sort of mark that you can see plainly will answer. We now want to set the plants 2 feet apart in these marks; but you do not want them to come in squares. Each row of plants should "break joints" with the preceding row; then any three plants in the plot will stand in the form of a triangle; and this triangle will be 2 feet on each of its three sides. The diagram above will help us to get the idea.

You will see by the diagram that each plant is the center of a circle of six plants. The plants are equally distant from the center one and from each other, like the cells of a honey-comb, if you choose.

There are two reasons for planting in this way. When the plants are large and bushy, they entirely cover the ground much better than if they were planted in squares, and each plant has all the room it possibly can have. Second, you can cultivate them from right to left and diagonally two other ways—see marks made by the cultivator on the left-hand side of the cut above. With this arrangement every runner is to be clipped off just as soon as it can be seen. The plants are to be pushed into fruit-bearing. They are to make fruit and nothing else; and if you have never tried the experiment you will be astonished to see the size and beauty of the fruit grown in this way. All the great strawberry-growers all over the world are practicing this or a similar plan, where they want extra-fine fruit. If you mark the ground and put it out as above, your plants will be just about two feet apart from center to center.

Perhaps you may ask how to get these plants exactly on this equilateral-triangle arrangement. In the cut you will see three letters, A, B, C. These letters form an equilateral triangle. Make it as large as your plot of ground will admit. Take three strings of equal length; stretch one of them on the first row from right to left; then stretch the other two so they will meet at the point C. Now cut two sticks just 21 inches long, or the distance between the marks made by your marker. Use a stick at each end of the row to measure from the first string, and stretch the string every time you put in a row of plants. These rows are to be parallel, either with the line B C or A C. Set a potted plant wherever the string crosses a furrow-mark. The cultivating is all to be done with the hand cultivator or garden-plow pictured below.



COLE'S GARDEN-PLOW.

This plow has three teeth, as you will observe, and makes three furrows. The dotted lines between the plants in the cut are to represent these furrows. Run this cultivator through the plants in three different directions, as I have indicated, say as often as once a week; and be sure you run it once after every shower when the ground in the beds is in the best state to pulverize. Any boy will do it after you show him how, and he will think it is fun—that is, if the field is not too

large and the boy is not too small. If you have a spell of dry weather, such as we are having now, keep your garden-plow going, and it will almost take the place of watering. In fact, that is what our garden-plow is doing just across the way while I write these lines. Some kinds of plants are better suited for this hill-culture system than others; but almost any variety will do ever so much better when it has room and good cultivation, and does not have to make runners.

#### SWEET CLOVER.

From Bulletin 74, of the State of Ohio, we quote the following in regard to sweet clover:

Sweet clover was formerly included among those weeds whose destruction might be enforced under the statute. But this sweet clover, especially the white sort, is rated by many as a valuable forage-plant. In this respect, without discussing its merits, it properly takes rank with white clover and other cultivated forage-plants. A bee-keeper of the State had sown an area to white sweet clover (*Melilotus alba*), for his bees to work upon. Under the statute, as enforced at that place, the authorities, after notice, entered the premises and cut down the plants. Sweet clover, and other plants of value for cultivation, should not be included among the weeds to be destroyed. There is now the best of opportunity, as well as urgent demand, to put Ohio weed laws into adequate and permanent form. Suggestions as to plants that should be included will be given in the weed bulletin now in preparation.

It is refreshing to know that our experiment station at least recognizes the mistake it has made; and the bee-keeper who had his sweet clover cut down on his own premises will probably get the value of his crop paid back to him, without question.

#### SWEET CLOVER, AGAIN; SOMETHING ON THE OTHER SIDE.

On page 536 I see Geo. W. Fair's question, "Is sweet clover a noxious weed?" About sixteen years ago I sowed, for a permanent pasture, red, alsike, sweet clover, and timothy. All grew to some extent. The second year I found nothing I had would eat the sweet clover. Horses, mules, cows, calves, sheep, and hogs all had access to it. I then plowed it up and cultivated the land and sowed the second year with mammoth, red, and alsike clovers, and timothy. Every year since, I have cut the sweet clover around the fences from one to three times. It has been my aim not to let any go to seed. I did the work myself. To-day I have been at it for the second time in 1897. I wrote to the *American Bee Journal*, stating my experience after I had tried it a few years, asking as a favor to notify the farmers. The answer was, "Your experience differs from that of others." Mr. Editor, if you will try to exterminate it for two or three years on a short piece of roadway or from fence-corners, you will be convinced. It is in Warren, Benton, Fountain, and Montgomery Counties; and on the highway, when stock is allowed to run, it is three feet high, while grass is quite short. In the closed counties the supervisors of the roads have it cut. I have talked to many of the farmers, and all condemn it as a weed. You say, "Teach your neighbors to make hay of it." Fence it off and turn cattle in, and let them starve. You say, "If you really want to get rid of it, wait till spring." Rot! If you want to get rid of it, don't let it seed; don't sow it. As for passing this journal around in the above counties, I wish to be excused. You may do that. I had it this year four feet high in pastures spoken of above. You seldom see catnip in pastures or in cultivated fields. I have received many benefits from the bee-papers, but it was through their influence I sowed sweet clover.

The seed may have a market value, but so has mustard seed; yet not many persons would advise farmers to sow mustard seed along the highway, to the detriment of others. I can show you sweet clover in the highway not as much molested by the stock that run there daily as is the mustard. Yes, I make mistakes, but you have made one that has done much damage to the farmers, and has been the cause of much hard

feeling toward the bee-papers. I believe that farmers will continue to blame any one who advocates the spreading of the noxious weed, sweet clover. Do you find mustard or mullein in your strawberry-patch at fruiting time? Here, and in Central Illinois, where we can grow any of the usual hay and grasses, we have no use for it, and I don't think much of any one who will advocate it. He is only making enemies; and it appears to them that he does it for gain. The question Mr. Fair asked is, how to eradicate it. If you know, tell us. I confess my twelve years' labor have not done it. I am glad I have not let it spread on my neighbors, and have it confined to the one pasture and the fence-corners. J. A. JOHNSTON.  
Green Hill, Ind.

I have given the above because I wish to have a fair hearing on all sides of the question. But I must still think our good friend Johnston has not exactly got the hang of the plant. I can not believe it possible that his horses and cattle are so different from those found elsewhere. Whenever I am away from home I am always watching to find a place where sweet clover seems to be crowding something else, but I have not found it. It is not in cultivated fields, it is not in pasture-lots, and I have never seen it in meadows. If it should get in with hay, especially if cut early, I can not imagine a horse or cow that would pick out the timothy and common clover and leave the sweet clover. So far as I can discover, it seems to occupy unused waste places, such as the banks along our railways, and roadsides where stock is not allowed. Where there is excellent feed along the roadsides, the cattle may choose the grass and clover first, because they have not learned to eat the sweet clover.

#### HOW TO GET RID OF SWEET CLOVER.

In the first place, cut it down before it produces seed, the same as you would any other plant. Second, turn on stock in the spring if practicable, and put enough stock in the field so they will eat up the sweet clover before it can go up to seed. Third, plow it under before it produces seed. Some one of the three above ways can almost always be found practicable. The principle difficulty will be in the fence-corners, where no stock is kept, or on railway ground; but as it has never yet got over into cultivated fields adjoining railroad ground and roadsides, on our premises, I can not understand how it should do any appreciable damage in any locality, where confined to these waste places. I am continually watching for it in my travels; and just as soon as I can find a place where it is detrimental to growing crops, pasture lands, or meadows, I will gladly report.

#### MULBERRIES—WET OR DRY LOCATIONS.

On page 535 you say that the Downing mulberry is like the willow. You will find yourself wrong in that. The mulberry does best upon dry clay ridges or well-drained land. There are, on the farm where I am writing, over 300 of those trees planted for a wind-break for the apple orchard, and some of them were planted on low land, and near the willow. The mulberry-tree died out on the wet land, while the willow died out on the high dry land. The mulberry will stand plenty of water if the drainage is good. You speak of the taste of the mulberry. You will find that trees from the same nursery differ very much in their fruit, ranging from very sweet to very acid. I find a great difference in the fruit of trees that are growing side by side, as well in the size of the fruit as in the taste of it. In all the 300 or more mulberry-trees on the farm here I find only one tree

whose fruit to me tastes like the mulberries which grew in New York—the ones I ate when I was a boy. I find that the best fruit is on the high and dry land, and remains upon the tree longest. I do not write for publication, but to let you know how it works here to plant the mulberry-tree on low or wet land.

Cuba, Kan., Aug. 6.

WM. H. EAGERTY.

You are doubtless right in regard to the mulberries. The tree I spoke of near the little fountain was situated right over the under-drain. The ground was kept damp around the roots of the tree during dry weather; but the drainage was so perfect there could never be any standing water. I am inclined to think you are also right in regard to the quality of the fruit; and it would be nothing strange if we should be obliged to resort to grafting as we do with peaches, apples, and other fruit, to insure having the best results. Now, then, have we a nurseryman who offers mulberry-trees grafted with select choice fruit?

#### HIGH-PRESSURE GARDENING, ETC.

It was a cruel disappointment that the department of "High-pressure Gardening" was omitted in Aug. 15th GLEANINGS. Helpful hints are contained in these articles, that benefit hundreds of your subscribers. A better word would be *friends*. I. DONNELLY.  
Indian River, Mich.

Why, friend D., there was "High-pressure Gardening" in the August 15th number, although I did not put in the heading. I told about the cold-frame plants at Mr. Miller's, the onions at Mr. Atwood's celery-farm, the potatoes at Wilbur Fenn's, etc. But I thank you for your suggestion, and will try hereafter not to omit that particular "dish" from my semi-monthly bill of fare.

### Special Notices in the Line of Gardening, etc.

By A. I. Root.

#### STRAWBERRY-PLANTS FREE TO EVERYBODY WHO SENDS \$1.00 FOR GLEANINGS.

I actually forgot to say to the friends, in our last issue, that I would continue sending the Darling strawberry-plant postpaid to every one sending us \$1.00 any time this fall; and as we now have a stock of plants of the Earliest, as well as Darling, you may have either one. Remember a transplanted potted plant in jadoo fiber, postpaid by mail, free of charge, to everybody who sends us \$1.00 for GLEANINGS this fall. It probably would not be worth while to try to winter them over after October unless you have a greenhouse, cold-frame, or similar protection. As for ourselves, by the aid of glass we expect to keep growing and potting these valuable plants clear on till Christmas.

#### WHAT CROP TO PUT OUT IN SEPTEMBER.

Well, it is just now time to sow Wakefield cabbage-seed to get plants of the right size to winter over in cold-frames. It is also just the time to start Grand Rapids lettuce, to have nice lettuce for Thanksgiving and the holidays. In our locality here in Northern Ohio, it is just the time to sow wheat or rye; and if you have sheep or stock that use the feed, it is just the time to sow dwarf Essex rape. Remember, this will stand almost as much frost as wheat and rye. Sow a piece of it where the poultry run, and it will give them green feed clear up to Christmas, and may be later.

If you put out strawberry-plants now, you must have *potted* plants, or have your ground sufficiently rich so they will get rooted well enough to stand the freezing and thawing. Our special strawberry circular will be mailed free of charge.

Of course, you do not want to forget to try hardy onion-sets put in the open ground this fall. We succeeded nicely with the American Pearl and Prizetaker. And, by the way, there has been an unusual demand

this fall for *Egyptian* onion-sets. We are entirely sold out of top sets, but we have a great abundance of bottom sets, or onions that have split up. These are just as good for planting, and some people think better, than sets. Price \$1.00 per bushel. See price of onion-sets, page 6-7, Sept. 1st issue.

Radishes put in good rich ground in the open air will usually make a nice crop before freezing weather; and the best variety for this purpose is the Chinese Rose Winter. And now is the time to put in spinach for wintering over, in most localities.

Now is the time to sow seven-top turnip-seed for plants that will winter over. But these make no root, but furnish greens in the spring, and, a little later, almost the first blossoms for honey. It comes in between fruit-blossoms and clover. If you are going to try it, it should be put in at once,

#### SEED POTATOES FOR 1898.

At present writing Sept. 15, nobody can tell definitely just what potatoes are going to be worth; but I have taken the liberty of offering all the varieties mentioned below, except Manum's Enormous, at an even dollar a bushel, or \$2.50 a barrel; and as they are worth this much in many localities for table use at the present time, I think our prices are very fair. The second size of any of these, until they are sold out, will be just half the amount. As we always run short of these second size long before spring, it might be well for you to put in your order now if you want them. I have just examined the potatoes raised by T. B. Terry, Wilbur Fenn, and others in their neighborhood, and I am very glad to tell you they are nice and clean, and, so far as I could learn, not a rotten potato has yet made its appearance anywhere in this locality. We should be pleased to send you samples by mail at prices given in the table, if you want to see them before buying.

NAME	1 lb. by mail.	3 lbs. by mail.	½ peck.	Peck.	½ bushel.	Bushel.	Barrel—11 pk.
Varieties are in order as regards time of maturing; earliest first, next earliest second, and so on.							
White Bliss Triumph	15	35	20	35	60	1 00	2 50
E. Thoro-bred, Maule's	15	35	20	35	60	1 00	2 50
Early Ohio	15	35	20	35	60	1 00	2 50
Early Northern	15	35	20	35	60	1 00	2 50
Burpee's Extra Early	15	35	20	35	60	1 00	2 50
Freeman	15	35	20	35	60	1 00	2 50
New Queen	15	35	20	35	60	1 00	2 50
Monroe Seedling	15	35	20	35	60	1 00	2 50
Rural New-Yorker No. 2	15	35	20	35	60	1 00	2 50
Sir William	15	35	20	35	60	1 00	2 50
Carman No. 1	15	35	20	35	60	1 00	2 50
Carman No. 3	15	35	20	35	60	1 00	2 50
Koshkonong	15	35	20	35	60	1 00	2 50
Manum's Enormous	30	75	30	50	83	1 50	3 50
New Craig	15	35	20	35	60	1 00	2 50



We have now a few Danzenbaker hives in the flat, and made up and painted, ready for bees, for those who will order at once. Some may desire to transfer colonies from other hives so as to be ready for next season. Mr. D. says he expects to transfer 50 colonies this fall into his new hive; and another party is going to transfer as many more.

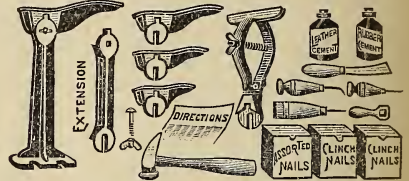
#### HONEY MARKET.

We are having a very fair demand for honey, both comb and extracted. We have a good supply of comb on hand and engaged, both fancy and No. 1 grades; are also prepared to furnish buckwheat comb honey. In 100-lb. lots and upwards, in original crates, we ask 13 cts. per lb. for fancy, and 12 cts. for No. 1; 11 cts. for fancy buckwheat, and 10 cts. for No. 1. Large lots for direct shipment quoted on application. We have a variety of extracted honey to offer. Willow-herb honey was almost a failure this year. We have secured nearly a ton of it, somewhat mixed with clover, which is still in Michigan. We offer this in 5-case lots (120 lbs. to a case) at 6 cts.; can supply water-white California honey or clover at the same price. Light amber California at 5½ cts. in 5-case lots; smaller lots at

½ ct. more. We have also two barrels of the Florida tupelo honey, which is very fine; shall be pleased to hear from those in want of honey.

#### GLEANINGS FOUR MONTHS FREE.

We wish to extend our subscription-list by several thousand names during the next few months. As a help toward that end we offer the remainder of the year 1897 for 25 cts. To those who send early we will mail the two August numbers, as long as we have a supply, as well as the remaining four months of this year. Will not many of our readers bring this offer to the attention of their neighbor bee-keepers who are not taking GLEANINGS? As an inducement to you to do so we make the following liberal offer:



#### ROOT'S HOME REPAIRING OUTFIT NO. 2.

We sold this outfit for years at \$2.00, and that is still the list price, and price at which it is usually sold. About a year and a half ago we reduced the price to \$1.50, and again last spring we made it \$1.35. We have quite a number of these outfits on hand which we desire to get into your hands where you can make them valuable in various kinds of mending. We will furnish one of these outfits, together with GLEANINGS for the rest of this year, for the price of the outfit alone—\$1.35. Now, if you can induce your neighbor to accept the offer above, put \$1.10 with the 25 cts. he gives you, and send to us and we will ship you one of the outfits. If you wish to renew your own subscription at the same time, send us \$2.25 for GLEANINGS one year, to yourself the rest of this year (4 or 5 months) to a new subscriber, and the No. 2 repairing outfit. Or if you can not secure the new name we will send the outfit with GLEANINGS one year, for \$2.00, the price you would ordinarily pay for the outfit alone. Please remember that, if you are in arrears on your subscription, all arrears should be sent in addition, as this special offer is made for subscriptions paid fully in advance.

#### CONVENTION NOTICE.

The Southeastern Tennessee Bee-keepers' Association will hold its annual session at Cookson's Creek, on Friday, October 1st, 1897, beginning at 9 o'clock A.M. Bee-keepers are earnestly requested to be present. The program foreshadows entertainment for the most fastidious. W. J. COPELAND, Sec.  
Fetzeron, Tenn., Sept. 3.

#### THE GLEANINGS CONTRIBUTION FOR THE STARVING PEOPLE OF IFDIA.

Since our last report we have received from Will Ellis, St. David's, Ont., Can., \$1; J. W. Margrave, Hiawatha, Kan., \$1, which has been forwarded as per following receipts:

BOSTON, July 3.

The American Board of Commissioners for Foreign Missions acknowledges the receipt from Chas. Booth, \$5; Albert Eckerman, \$1, and Will Ellis, \$1.

Also, July 2, the American Board of Commissioners of Foreign Missions acknowledges receipt of \$1 from J. W. Margrave, Hiawatha, Kan.

We have also received from C. A. Bunch, Nye, Ind., \$3.

The strawberry plants I received of you are doing well. Last year, from 20 rods of ground I sold \$30.00 worth, gave away \$14.00 worth, used in family \$16.00 worth, making \$60.00—very good. They were Haverrland, Warfield, Sharpless, Crescent, and Parker Earle. West Hoosick, N. Y., Sept. 4. WM. P. ABBOTT.

The Weed foundation is the nicest I have ever used. It seems to be very tough, even at a temperature of 85 degrees—something I have never noticed in any other foundation I have ever used. J. E. MOTTER, JR.  
West Alexandria, O., June 16.